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USSR Report

MILITARY AFFAIRS

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Moscow KRASNAYA ZVEZDA in Russian 13 Apr 85 p 2

[Editorial: "The Authority Of VAI"]

[Text] The USSR Supreme Soviet Presidium has granted officials and also supernumerary VAI [military motor vehicle inspection] inspectors the right to review several acts involving violations of traffic regulations. VAI workers have the right to impose administrative penalties in the form of a warning (by cutting the driver's license) to Armed Forces transport drivers, ie servicemen (reservists called up for assemblies), for driving vehicles that are technically defective, failing to obey signals and signs regulating traffic, causing accidents and several other violations. If the punishment is a fine, the materials on the violation are forwarded to the appropriate commander (chief) for his decision on the violator's disciplinary obligation. If the driver's right to drive transport equipment is revoked, a record of this is made and it is noted on the driver's license. In order to stop violations, review cases and register documents, drivers or other people driving Armed Forces' transport equipment can be detained for up to three hours and when necessary, sent for questioning if there is evidence of intoxication.

Abuse of State Awards

Moscow KRASNAYA ZVEZDA in Russian 13 Apr 85 p 2

[Editorial: "Responsibility Is Set"]

[Text] The USSR Supreme Soviet Presidium has established administrative and criminal responsibility for the illegal actions concerning USSR state awards. Wearing an order, medal (its ribbon on a bar) or lapel pin for an honored USSR rank and also illegally keeping these badges of distinction will result in a warning or a fine of up to one hundred rubles. When writing up a report on such an offense, the police worker has the right to confiscate the order, medal or award. These are returned to their rightful owners and if they are unknown, they are sent to the USSR Supreme Soviet Presidium.

Buying, selling, exchanging or any other punishable transfer of an order, medal or lapel pin for an honored USSR title are punishable by correctional work for a period of up to one year or a fine of up to two hundred rubles. Repeat offenses and also the forgery or premeditated destruction or other outrage toward these badges of honor are punishable by imprisonment for a period of up to three years, corrective work for a period of from one to two years or a fine of up to three hundred rubles.

12511
CSO: 1801/208

ARMED FORCES

BIOGRAPHICAL PROFILE OF FAR EAST MD COMMANDER, ARMY GEN YAZOV

Moscow KRASNAYA ZVEZDA in Russian 13 Apr 85 p 3

[Article by Colonel G. Kashuba, special KRASNAYA ZVEZDA correspondent: "Born in Yazovo"]

[Text] A military personal record [kharakteristika]. It is difficult to think of a more expressive title for this item, an item that takes up one half of the yellowed page from a personal file. "Lieutenant Yazov is working in the position of deputy company commander in the 483rd Rifle Regiment. He can handle the work... He is a daring, brave commander, full of initiative and a participant in battles with the German invaders.

Major Kolchin, regimental commander
Captain Titov, chief of staff

No, it was certainly no accident that the word "work" appears twice in this military record. Now commander of the Red Banner Far East Military District General of the Army D. T. Yazov shares his ideas on what this in essence means for a man of war. This is more than daily labor and constant, strained work. A man who understood his responsibility in this fought well and was able to defeat the enemy.

The Volkhovskiy Front was the defensive line where Hitlerite divisions that had broken through from the south-west toward Leningrad were stopped. Woods, swamp and shrubs. This was the primary terrain near Pogost'ye station where the 483rd Regiment had its positions. The forward defensive edge went along the Dubok River and the 40 years that have past have not erased these names from our memory. And the work has not been forgotten -- how they dug trenches while they were up to their knees in water, ladling water out of them and reinforcing their sides with whatever they were able to find. How they constructed dug outs and sheltered trenches which served as the soldiers homes for the long summer and winter months. How they learned to fight, conducting battles of local significance. They learned from their errors and from their bitter lessons. One fruitless attack was well remembered. They dislodged the enemy from the first trench, but were not able to reinforce this line. The pre-attack reconnaissance had been done poorly and the enemy's fire support had not been suppressed. They suffered losses and pulled back.

And how many times had seventeen-year old Lieutenant Yazov, who had arrived on the front during the summer of 1942 after finishing an accelerated course at the infantry academy (now the Moscow Higher Combined Arms Command School imeni Supreme Soviet RSFSR), led the soldiers of his platoon in training attacks. He would select a piece of terrain in the rear area, two to three kilometers from the forward edge, that looked like the terrain in the sector of the regiment's expected attack. And they worked until they dropped, learned how to shoot accurately, dig in safely, throw grenades precisely and quickly cut barbed wire.

The platoon had 40- and 50-year old soldiers. And the nickname "sonny" wounded his pride. This is how several of his subordinates addressed him. "Comrade Lieutenant", as everyone began to call him after a while with stressed respectfulness, began to sound like music to his ears. The respect was because he worked more than everyone and because his subordinates trusted his command ability. Lieutenant Yazov always found time to help one soldier or another write a letter home or read a communique from Sovinformburo [Soviet Information Buro] to the soldiers.

He greeted his men as if they were relations after leaving the evacuation hospital where he had lain for two months with a wound and contusions. After his return to the regiment he got some sad news. His fellow countryman and fellow graduate from the academy, Kostya Solov'yev, had died. Lieutenant Yazov took over his friend's company, 9th Company of the 483rd Rifle Regiment.

By the end of 1942 the new infantry field manual (BUP-42) was in effect in the regiment. It incorporated experience from the past months of war. General of the Army Yazov even today can quote many articles from that manual by heart, and especially those that dealt with the duties of a company commander. Is it possible he recalls them so well because they were inculcated not by the years, but by what he suffered and learned in the trenches during a time that was permeated by powder, when carrying out or not carrying out the regulations meant victory or defeat, life or death?

In the fall of 1967 I went from Chita to a remote Transbaykal garrison on newspaper business. In the evening I overheard this in the hotel. "We have a new komdiv [division commander]. After completing the General Staff Academy Colonel Yakov is strict -- don't let him catch sight of you. They say that he wore out one regimental commander with questions about regulations and equipment and weapons characteristics."

"There is a great deal of fantasy in these words and especially in the part 'wore out'," said Lieutenant Colonel P. Tarasenko, chief of the division's political department, later. "That the komdiv is demanding and maybe even cruel is true. But he asks about business."

I remember how he criticized one of the regimental deputy commanders at a meeting of formation party activists -- for being out of touch with educational work. The komdiv had been in a unit the night before and had talked with the commander and his deputy while they were preparing for an attack. The invariable questions for each were: "how well do you know your subordinates, when was the last time you spoke to your personnel about a

political topic and what books do you read." The deputy regimental commander tried to justify his own shortcomings on these issues with the specifics of his position: he said my business is the training range and training base.

Colonel Yakov also began his address at the party activist meeting with his idea that every officer and every military leader is first and foremost an educator.

~Major General Petr Alekseyevich Tarasenko remembers, "That meeting was called on Dmitriy Timofeyevich's initiative. It was about one month after he arrived in the division."

This was one of the most difficult and remote garrisons. The steppes and strong wind in late fall and winter. There were not enough houses and few green saplings to brighten up the area.

I had occasion to again visit there in the summer, almost three years later. The picture was almost totally different. There were several new five-story buildings and a new school. Straight lines of poplars grew along pedestrian paths and near houses. The summer was hot and every morning a water truck sprayed around the city. There was one thing that had remained unchanged in the garrison. No later than one hour after sunrise D. Yakov, then already a major general, could be seen in one part of the city, then in another. Slightly over average in height, lean, with his waist belt tightly drawn and in boots, he generated energy.

"The Transbaykal is harsh. On the Volkhovskiy Front we had swamp and here we have 'whetstone', rocky soil that you hit with a crowbar and sparks fly. It would be difficult for a platoon to dig in and get camouflaged, never mind a battalion, regiment or division."

District Commander General of the Army P. Belik flew over the training area in his helicopter. The former warrior, front-line soldier and Hero of the Soviet Union did not miss a single mistake. At one point the corner of a staff vehicle was poking out from under the corner of a camouflage net and in another place fresh earth was visible on breastworks. Disorder. The war taught us that camouflage is the natural sister of victory. The commander talked about these omissions at the critique, but he also noted that there were fewer of them than there had been. And this even sounded laudatory.

Petr Alekseyevich Belik, now deceased, was strict and wise; Army General Yazov stresses that there was much to learn from him. I had the occasion more than once to hear Dmitriy Timofeyevich talk about General of the Army I. Tret'yak and other commanders and military council members --chiefs of the district's political departments and other chiefs with whom he had occasion to serve, with gratitude.

This remote garrison soon became one of the best in the Transbaykal. And thanks to what? Thanks to the constant attention of the district military council and the political department which at that time was headed by Lieutenant General V. Goncharov (now a colonel general), the good management and business-like attitude of the staff and division political section and

also the enthusiasm of all the city's inhabitants. But everyone who had occasion to visit the garrison during this time noted D. Yazov's major role in the garrison's transformation.

I have one question. What is a commander and what are his responsibilities? The military encyclopedic dictionary says that a commander carries out command, disciplinary and administrative-domestic functions. But what about educational, political and social functions?

A little more than a year ago -- General of the Army Yazov was then commanding the Red Banner Central Asian Military District -- I had the opportunity of being at a meeting with his constituancy as deputy of the USSR Supreme Soviet. What functions was he fulfilling at that meeting? Or, for example, when the commander speaks, and as I was told at Alma-Ata he is regularly invited to such functions, to students at the republic's senior party school. Here again the functions of a military commander and a social and party official are combined. D. T. Yazov is a candidate member of the CPSU Central Committee and was elected a member of the republic's Communist Party Central Committee buro in Kazakhstan.

In the Central Asian Military District I saw the commander at various jobs. Training, military council meetings, a trip to a remote garrisons, visiting every barracks and every training site there. This was not a quick inspection, but an intent examination. He compared what had been there a month ago with what had been done and more importantly, how it had been done. Did it meet contemporary demands? I remember how the commander transformed a simulator complex. Everything there was equipped with electronics and automation. Plus cleanliness and clear order. The return? Exercise efficiency is significantly increased. This is today's training, but to a larger degree, it is tomorrow's combat training. Then a trip to the Alma-Ata Higher Combined Arms Command School imeni Marshal of the Soviet Union I. S. Konev and to a military sovkhoz. And all of this in the scope of a few days. His concerns were comprehensive and extensive, but he did have one common focus. This was combat readiness, the primary concern of every commander, deputy and military council.

Command and staff training. There are officers from the formation headquarters and the political section and also chiefs of combat and combat support forces at the command post. Along the walls and on the desks are large maps dotted with arrows and one can hear the names of water obstacles and settlements. The walls literally move apart and on the Far Eastern spaces one can see armored columns on the march and in the attack and also airplanes and helicopters in flight.

Commander of the Far Eastern Military district General of the Army Yazov is listening to the concept of the operation. The formation commander is reporting on the organization of command and control, reconnaissance, mutual support, party-political work, rear area support and ... Work, work, work. And everything had been rather thoroughly thought out. But there should still be questions -- for the commander, the chief of staff and officers from the

combat and combat support units. They are designed to get to the details and rivet peoples' attention on them, for success in battle is impossible without this.

I remember the scientific-military conference that had taken place the day before. It was dedicated to front-line experience and its significance under modern conditions. In his speech to the conference General of the Army Yazov stressed the idea expressed by USSR Minister of Defense Marshal of the Soviet Union S. L. Sokolov. This was that these lessons of war can never grow old, and neither can the approach toward realizing operational-tactical missions, the comprehensive creativity that shows up when this is used and the care and painstaking work of developing all the preparatory measures with subordinate commanders and forces.

The arrows on these maps are formidable. But who is on the points of these arrows and who puts the commanders' concepts into operations? One could say that it is the division or regiment. But all the same, at the very tip of those arrows is a company. D. Yazov commanded a company for seven years. Then there was a battalion, the district combat training directorate and a regiment. And the tempering he received in the company helped everywhere.

"A characteristic trait in the commander's work style is his desire to reach to the company, to the man and individual work," said a member of the military council, chief of the district's political directorate Colonel General N. Kizyun.

On that day General of the Army Yazov had assigned himself the goal of finding out how specifically and comprehensively the commander, political section, formation staff and unit officials were involved with the issues of strengthening discipline and regulatory order. This division was selected for two reasons. First, it lagged behind the other major units and second, the division commander was new, assigned only three months earlier. The military district commander wanted to see him in operation.

The commander ended the day in a company having a detailed conversation with its commander, Captain Ye. Veretennikov. The questions asked him were: how much do you command the company, what were the results of military and political training, the results of last month's competition, the state of discipline, the level of his personnel's education and their national composition. Veretennikov answered all the questions thoroughly.

"What have you read in recent months?"

"Vechnyy Boy" by Karpov. It is about our army service, but "Vechnyy Boy" is an indoctrinational work, an unceasing battle for humanity and for a staunch, ideologically tempered soldier that doesn't stop for a minute."

The commander's face lit up, for Captain Veretennikov was thinking true thoughts.

Soon afterwards I found out that Veretennikov was promoted to the position of battalion chief of staff and is successfully carrying out these duties.

One could hear a continuation of the conversation that took place in the company during a district military council meeting that was dedicated to cadre policy.

General of the Army Yazov said, "We will do everything we can to support the encouragement and promotion of people who show an honest and conscientious attitude toward carrying out their military duty not by words, but by actions and results.

On the day I was leaving Khabarovsk I called the duty officer at seven o'clock in the morning and asked when the commander would be in. The answer I got was that he was already in. And at seven in the evening you could hear that he was still at work.

Here's a typical characterization of D. Yazov's family. By the time she finished tenth grade his daughter Lena had attended her seventh school (although this did not stop her from winning a gold medal). This is how often her father had changed his duty station. Beyond the polar circle, abroad, in Transbaykal, in the Transcaucasus, Central Asia, the Far East. On the world scale and at great distances. But as with each of us, Dmitriy Timofeyevich had a beginning. He was born in the settlement of Yazovo in Okoneshnikovskiy Payon, Omsk Oblast. His mother Mariya Fedoseyevna recently marked her 80th birthday. Her husband died from some disease as far back as 1934 and she worked on a kolkhoz her whole life, raising two sons and two daughters. There are remembrances of childhood -- hay making, working on the lobogreyka [reaper] (from the words "to warm the forehead"), working as a postman during vacation to bring some more kopecks into the house. And along with these memories there are the war and the front.

Forty years have passed since Victory. And still among commanders there is the unity of front-line soldiers. And General of the Army Yazov is one of them. I again read his military file and I smell the powder in it. Its echoes are also heard in the lines of the last testimonial from his personnel file. Here are those lines. "This is a strong-willed man, demanding and thoroughly prepared."

There are not many days when Dmitriy Timofeyevich is able to see the banks of the Ussuri or Amur. But he has to go there, if only to feel the breath of history. You look at the boundless waves of old man Amur and you see the Cossacks of Yerofey Khabarov, the bands of Sergey Lazo, the stormy nights of Spassk and the days at Volochayev. You see the native Yazovo, the small Dubok stream amid the Volkhovskiy swamps and the friend from the front, Kostya Solov'yev, rising for the attack, Kostya, who will forever remain young.

12511
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ARMED FORCES

MOTORIZED RIFLE COMMANDER, INTERSERVICE COOPERATION

Moscow KRASNAYA ZVEZDA in Russian 22 May 85 p 2

[Article by Lt Col V. Osipov, commander of an artillery regiment: "At the Battalion Level"]

[Text] Reflections on the Results of Winter Training

An issue was being resolved at that critique session: Was Capt V. Veselov's motorized rifle battalion to be judged "excellent" or not? The resolution of this issue depended ultimately on the mortar battery. The mortarmen were unable to score "outstanding," only "good." Capt Veselov, however, did not reproach the battery commander for anything; he had no moral right to do so. It was revealed that the battery's personnel did not always participate in the fire exercises conducted on the regimental scale; either they were detailed to other duties or tied up with administrative issues. Overall, very little attention was paid to the exercises in the battalion. This means that it was necesssary to give a pat on the back to the mortarmen even for their rating of "good."

Before the start of the new training cycle, Capt Veselov dropped in to seek my counsel: How could the training of the mortar and anti-tank subunits be improved? I will honestly say that I was pleased with his visit. It is not all that often that battalion commanders consider it necessary to consult with us, the chiefs of the service arms. They are almost embarrassed to accept suggestions from people not directly in their chain of command. On the other hand, they believe that the training level of artillery subunits is not of decisive consideration for the battalion. Allegedly, the main point is that the motorized rifle companies be well trained. It is, therefore, necessary for this reason that the chief of artillery himself seek out meetings with the battalion commanders to find out why the officers and sergeants of the mortar battery missed artillery fire training and why the anit-tank platoon turned up on administrative detail and not at its training exercises.

Now, Capt Veselov and I, as they say, understand each other completely. He is concerned with the training of the artillery subunits to the same extent he is with the field skills of the motorized rifle subunits. Theartillerymen perform under great pressure at any exercise being directed by this battalion commander. I cannot remember an incident where the battalion commander forgot

about them in the heat of combat training and did not take advantage of their capabilities. It is no surprise that Sr Lt M. Karapetan's mortar battery is the best in the regiment: it achieves outstanding scores on all evaluated fire exercises.

Unfortunately, the other battalions have a somewhat different attitude with regard to their artillery. In my opinon, the battalion commander is the first position in which one can consider himself totally a combined-arms commander. Others, however, who hold this very same position, feel that they are pure motorized riflemen, if I can express it this way. They often disregard their own artillery subunits and commit errors in the organization of coordination with attached and supporting subunits of other branches of service.

Why is it then that combined-arms commanders fail to scrutinize the training process of artillery and other subunits? I believe that the senior commanders who evaluate the skills of battalions and regiments in tactical exercises are partially responsible for this situation. The exercises are not always sufficiently structured with hypothetical situations and do not allow the utilization of mortars and anti-tank means.

At one exercise with field firing the motorized rifle companies performed superbly. Battalion Commander Lt Col S. Paksin skillfully commanded and controlled his subordinates. Suddenly, the exercise director tasked Paksin with a mission requiring him to employ his mortar battery immediately. The battalion commander clearly had not reckoned with this: motar fire had not been planned for in this exercise. It was revealed that the battalion commander did not even have radio contact with the battery commander. Afterwards Lt Col Paksin jusitified his situation with the line that such radio contact is difficult to maintain.

Of course, there are complications, but they can be dealt with. Capt Veselov himself, let us say, allocates an armored personnel carrier to the battery commander or invites him into the command staff vehicle. Any and every exercise scenario reaches the mortarmen immediately. Not that the batalion commander has to wait for hypothetical situations to test his men; he himself assigns missions to the mortar subunits and evaluates the degree of their training.

Veselov approaches the training of the personnel of the anti-tank platoon in the same manner. I cannot think of a single exercise in which this subunit did not perform missions typical for it.

In the battalion commanded by Lt Col V. Starodvorskiy the anti-tank personnel play only the role of motorized riflemen in many exercises. The battalion commander refers to the fact that anti-tank systems are expensive weapons systems and not to be taken on exercises when actual launches are not planned for. This strange position is not held by Starodvorskiy alone.

Incidentally, the launching of an anti-tank missile is not the only objective in an exercise. The personnnel of anti-tank platoons are still required to learn how to operate their weapons accurately and to show tactical skill in the selection of fire positions. Additionally, they also need to acquire

skills in dealing carefully with battlefield systems and meet standareds set for them. Can one really learn all of this by operating only with an automatic weapons firing in an automatic weapons firing in an infantry line moving forward?

When battalion commanders are reproached for their poor work with their artillerymen, they more often than not object and say: "What can we teach them? There are battery and platoon commanders who have attended special schools, and there is finally the chief of regimental artillery. They are the ones with the maps in their hands..." It is, therefore, primarily up to the specialists to teach the artillerymen how to fire accurately. There are, however, problems which can and should be solved especially by the combined-arms commanders. Let us take a look at how coordination is set up on the battlefield. As it stands, it is still not always precise and uninterrupted. Why? Who can answer this better and more completely than the combat planner?

Incidentally, the amount of attention focused in the battalion on the coordination among various forces and assets is insufficient. One day, I analyzed the nature of group exercises in the system of the commander's preparation and concluded: The majority of them are motorized rifle activities. Motorized rifle company commanders perform various tactical missions, react to suddenly changing situations, and make very quick decisions. The battery commanders, however, seem to sit around with little to do. But they could be learning a great deal by performing missions typical of them and the motorized riflemen against a common tactical backdrop; they too would really feel the pressure and dynamics of combat.

The question arises: Are all battalion commanders ready to train their artillerymen? Not all of them. This is primarilly because they do not want to enhance their own knowledge and skills in this area. While preparing lessons with artillery subunit commanders, I invite battalion commanders to these lessons all the time. They rarely respond to the invitation. This means that they do not want to develop as combined-arms commanders in the tactical and methodological sense.

As far as scheduled meetings with battalion and company commanders are concerned, the issues of the employment of artillery and the training of artillerymen are examined extremely rarely. Even I, the chief of a service arm, am not always successful in finding support from the regimental commander and his staff. They often respond that they have no time to work on this even though they have more than enough time to deal with "their own" issues.

Thus we have a division into "their own," important matters and "other," secondary matters. Hence the attitude toward the training materials and equipment base which the mortarmen and anti-tankmen need. In the regiment it does not fully meet the needs of the times and lags behind the motorized rifle platoons' base. True, more recently something has been done. A rifle artillery range for mortarmen has been refitted, and new mountings prepared. But operators of anti-tank guided missles as before have no place to practice: there are no special classes and no simulators.

Recently the regiment has begun to conduct a so-called firing day on a weekly basis. A very promising undertaking. But this day attracts 90 percent of the personnel or more in the artillery regiment, while every other serviceman in the battalion was absent from the exercises. The attitude of the battalion commanders toward their artillery described above is manifest here.

In modern combat victory is achieved by coordinated actions by subunits of all arms of service. This coordination must be formed on a day to day basis and in all exercises and drills.

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CSO: 1801/233

GROUND FORCES

BRIEFS

ARTILLERY FIRE CONTROL COMPUTER -- During tactical exercises the opposing side tried to introduce fresh troops into the battle. However scouts were successful in discovering the "enemy's" intentions and the artillery was given the mission of impeding the reserves' advance. They used a computer for fire control. Computers are being used more and more often in the district's artillery units to compute missions and to increase officers' professional training skills. Colonel Ye. Bazhanov took the lead in introducing the electronics equipment and Lieutenant Colonel Yu. Yermakov made a major contribution to developing the program. Senior Lieutenant D. Amusin distinguished himself as a skillful programmer. A learning-and-training complex was developed and is operating in one of the district's best artillery units and specialists from other units train there. [by Lieutenant Colonel A. Yurkin, Order of Lenin Leningrad Military District] [Text] [Moscow KRASNAYA ZVEZDA in Russian 17 Apr 85 p 1] 12511

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NAVAL FORCES

AUTOMATED COMMAND, CONTROL SYSTEM IN SUBMARINE WARFARE

Moscow KRASNAYA ZVEZDA in Russian 11 Apr 85 p 2

[Article by Captain 1st Rank V. Lushin, deputy commander of a sea command, Hero of the Soviet Union: "The Commander And ASU]

[Text] Two submarines put out to sea and at the designated area they conduct a training battle, their own duel. Who will win?

Recently, after stressing for those present that his supposition was not really coordinated with the result, the commander of a submarine unit critiqued the results of the training battle. It was more interesting to clear up what had taken place and why the more technologically advanced ship with what would seem a more modernly trained crew unexpectedly lost the duel to another ship, one whose chances for victory were significantly less.

If one were to pick out the main reason, it was the fact that the commander miscalculated in using the ship's capabilities that he had at his disposal and especially the automated command and control system (ASU). The commander did not feel that it was necessary to use it to its full capabilities in what seemed to him to be an easy battle -- and he lost. And the commander of the rival ship, Captain 1sr Rank Basov, behaved very differently. He understood that he had a chance for victory only if he used all the capabilities of the ship and crew. He evaluated the situation better, more definitively predicted the meeting under the water and was able to quickly gain an advantageous position when he detected the "enemy" and fired an accurate torpedo volley.

As was established at the critique, Captain 1st Rank Basov used the ASU capabilities in a very active manner throughout the entire duel and therefore was able to control the situation much better. He literally had a premonition that his rival was looking at the upcoming duel in a cavalier manner. And his own correct psychological preparation did a lot to guarantee victory.

For today's commander, dialogue with a computer during battle is as natural and necessary as his interactions with his ship's combat or anti-submarine crew. Commanders fully understand this. Everyone knows that the enormous capabilities of a computer aren't simply that it calculates faster than man, in all practicality doesn't allow errors regardless of the complexity of the

situation and is not subject to stress factors, but that it also allows the commander to analyze many variants in battle with great accuracy, accuracies that are beyond the limits of man's capability.

Commanders understand that commanding a modern ship and using the weapons located on board are complicated without computer aids. But nonetheless reality has shown that at times they do not place enough attention on modern command and control means. Yes, there are situations where experience and intuition allow the commander to reach the optimum decision without resorting to numerous calculations. On the whole though, when a prize of several seconds has a decisive effect on a ship completing the missions assigned to it, there must be a guarantee that the commander and crew will use every possibility to get these seconds in contemporary battle.

And in this past training year there were commanders who from personal experience were convinced of the danger of underestimating the situation and overestimating their own capabilities. While carrying out anti-aircraft missile firing on an anti-submarine ship, the commander overestimated the firing crew's level of training and his own personal capabilities and ordered the BCh-2 [fire control division] commanded by Captain 3rd Rank V. Kovalev to transmit target data using the back-up method. It seemed to him that it was more reliable and simpler. As a result, the anti-aircraft complex crew received the data on the aerial targets too late.

Without arranging it ahead of time, both the submarine and the surface ship commanders gave the same argument in their defense. They thought that the situation was too simple and obvious to fully burden the ASU. And in both cases, the situation changed and got complicated so fast that the ship commanders were unable to react and switch over.

Yes, it seems to us at times during combat exercises that we can easily complete one mission or another in the old manner. And in actuality, at times this can be justified. This is because from time to time tense tactical backdrops are not always realistically developed in a training battle and also because there are still simplifications and a formal approach to resolving assigned missions. But a commander has to train himself for the situation that requires maximum efficiency from himself and crew. And to do this, a commander must develop the correct approach and a modern work style in battle. And he must look at solving specific combat training missions not as an end in themselves, but as a new level of combat skill growth. Now skillfully using the ASU is an integral part of this for a ship's commander.

Something special must be said about using ASU for navigation. The ASU must not be reviewed here outside of its relationship and isolated from combat weapons training work. Yes, under ordinary circumstances determining the ship's location, calculating a safe stand-off distance from targets, maintaining an assigned location during multi-ship cruises and a number of other such missions can be easily solved using traditional methods. Do we have to use the machine for such missions?

This question is not as simple as it seems. Undoubtedly resolution of these missions should not be complicated in real battle. And this is not always

efficient under some cruise conditions. On the other hand, the commander must steadfastly develop his work habits under conditions that are as complicated as possible, where he will be totally occupied with the primary problem, employing the ship's weapons. All the other problems must be resolved by subordinates and equipment. He must not wait for special conditions to acquire these habits and so must intentionally complicate the methods for carrying out simple tasks.

The stereotype of responsibility for using ASU must be formed and reinforced from watch to watch and from mission to mission so that the commander feels uncomfortable without its data. And such a need for constant dialogue with the electronic aid must be experienced by all watch officers, navigators and combat information center officers.

Speaking about developing a positive stereotype in the commander, and more correctly, the development of a rational, creative attitude toward using the ship's computer equipment in contemporary battle, we must stress that the flagship and its staff have a special role in this. Every ship, unit and formation commander must feel their senior chiefs' constantly directing and influencing their formulation of the professional need for using computers.

The flagship must set an absolute example for commanders in this area. The flag officer constantly has a whole arsenal of means at his disposal and he is urged to develop the optimum level of activity in the commander-ASU system. Unquestionably one of the most effective is planning conditions for carrying out military exercises and also monitoring and evaluating their results. How often do we run into commander's criticism (right up to reducing an evaluation score) for carrying out firing exercises without using the ASU energetically or creatively enough?

There was one case where the staff reduced an evaluation for the ship where Captain 3rd Rank Yu. Zabiyakin serves as commander of the missile gunnary department. His score was reduced precisely because of superficial use of the automated missile firing system. But the fact that the ship's missilemen considered themselves treated badly without cause shows how unaccustomed people in units are to such "severity".

No, no one certainly fights for purely mechanical worship in front of an ASU complex. This is the usual image of duty aboard a modern ship as, for example, in front of sonar and radio equipment. Therefore the key figure who makes the independent and final decision on all questions of using available equipment, including the ASU, was and still is the ship's commander. In the end, both the conditions for ASU use and the level of its "influence" on each specific episode of the crew's combat training depend on the commander. And in this regard every piece of equipment primarily serves to liberate the commander's creativity in battle and not the other way around. It is primarily for this reason that he has the right both to use the computer's recommendations when making his decision and also to call these recommendations into question or to

selectively consider them. But all the same there must be a creative dialogue between man and the computer, for in any case an analysis of the recommendation from "smart" equipment helps the commander make the most effective decision for victory in battle.

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MILITARY HISTORY

MAR AVN POKRYSHKIN ON BATTLE FOR CAUCASUS

Krasnodar SEL'SKIYE ZORI in Russian No 2, Feb 85, No 3, Mar 85

[Article by Marshal of Aviation A. I. Pokryshkin, three time Hero of the Soviet Union: "Battles For The Caucasus"]

[Feb 85, pp 41-44]

> [Text] Voyenizdat is publishing the memoirs of three-time Hero of the Soviet Union Marshal of Aviation A. I. Pokryshkin entitled THE WAR'S SKIES for the 40th anniversary of the Soviet peoples victory over Hitleristic Germany. The book recounts the past and the unforgettable and also the aerial battle in which Soviet aviators won victory over the air forces of Fascist Germany.
>
> The author of the book obligingly gave the editor of SEL'SKIYE ZORI excerpts from his book. We offer them to our readers.

During the flight squadron commander Kamosa himself headed our group of six Yak-1's. He assigned me as wingman for his pair. While making a circular sweep along the flight route I caught sight of twelve enemy aircraft on our right, flying in from the north on a course to the Likhovskiy rail junction. Speeding ahead of our group, I warned them about the enemy by rocking my wings and then returned to combat formation to meet the enemy. As we closed I noticed that these were Me-110 fighter-bombers which carried powerful armaments in the aircraft nose section. I had already met up with this type of airplane west of Voroshilovgrad. It would have been reckless to try a frontal attack against them so I began to climb my plane to gain the advantageous heights above them and attack them from above and behind.

Kamosa deployed the five Yaks into a frontal attack that was clearly a tactical mistake. After dropping their bombs in a field the Me-10 group tightly closed up their formation and met our fighters' frontal attack with heavy fire, forcing them to break off the attack and dive off to the side. After this, the Me-10's set up a circular defense for mutual support against our possible attacks.

Using the altitude I had gained over the circling group of Me-10's, I made successive attacks, expecting Kamosa's group which I never did see again.

The Me-10's, seeing that only a single fighter was attacking them, themselves began to attack, spraying my aircraft with cannon and machine-gun fire from all sides. I immediately had to stop thinking about attacking the enemy and about finding a way to break away from this skirmish.

After finding a good moment, I pulled out of the one-sided battle with a sharp dive.

After I arrived at Rostov I saw all five of our airplanes sitting there. I went up to Kamosa and asked, "Why didn't you join in the battle against the Me-10's and why did you leave?"

"How could we get into a fight with them? They met us with such a screen of fire that I was surprised none of us were shot down," said Kamosa justifying his actions.

"Well, were you right in making a frontal attack at their same altitude? You have a total of five cannons and the enemy had forty seven! What you should have done was gain some altitude beforehand and attack the "Messers" from above."

"Well, the main thing is that we forced them to drop their bombs in a field and did not let them reach their target and also that we didn't lose anyone. And were you able to shoot anyone down?"

"I don't know. If I didn't shoot anyone down, I at least put some holes in someone. There was no time to look for the results of my attacks. And then they began to push me and I barely got away from them," I answered.

From the conversation with Kamosa it became obvious that he didn't share my dissatisfaction with our operation against the Me-10 group.

We had to prepare the squadron's pilots for combat operations in a new area, along the approach to the Don, without losing any time. We didn't have long to wait before we got missions for combat flights.

Once again we began the tense combat work of flying reconnaissance flights, strafing the advancing enemy and covering the crossings of our own retreating forces and escapees across the Don. Everyone looked to the Don for the hoped-for safety from the Germans who were advancing on a wide front towards the river.

You make a combat flight and with a glance at the right bank of the Don you again see a repeat of the picture from last year at the Dnieper. Escapees alternating with retreating military units moved in streams along all the roads and pooled into combined crowds at the Don crossings awaiting their turns on the ferries. Our mission was to provide cover for them, especially at the crossings, and also to keep the enemy from destroying the ferries.

German aviation persistently strained to get to the crossings to stop the movement across the river, tear up the escapees on the right bank and also to stop the retreating forces from setting up a defense along the Don.

We pilots understood our responsibility to provide cover for the crossings and to hold back the advancing enemy. We took off early in the morning to strafe enemy columns, fought in aerial battles and kept flying until darkness fell. We tried to compensate to some degree for the enemy's ten-to-one superiority in airplanes with an unprecedented strain in combat flights. From early morning to late at night we rested in the southern July heat only during those minutes when the airplanes were being refueled and rearmed.

At times during strafing missions we met up with groups of German bombers with fighter escorts. We threw ourselves at the enemy trying to keep them from the crossings and to force them to drop their bomb loads in fields.

We imagined people's happiness at crossings when our fighters saved them from bombings and we imagined their dissatisfaction with our aviation when we couldn't stop the enemy bombers' bombing raids. And unfortunately this did happen. Our forces were few and there were more than enough combat missions. There were ten Germans for every one of our airplanes, including the night-flying U-2.

Our regiment was not held long at Rostov. Enemy tanks were approaching its suburbs and their aviation was systematically bombing the city and the airport. The regiment was moved to the other side of the Don, to Batayik, but even there the frequent siege of the airport and the bombings by enemy night bombers disrupted our work and our nightly rest.

After a tense flying day pilots could not sleep at night for their short naps were disrupted by the explosion of bombs dropped on the airport and on our sleeping area.

Finally in Bataisk we received instructions to ship airplanes that had used up their motor life and had become defective to the rear area aviation repair shop for major repairs. All of Figichev's MIG-3 squadron and some of the Yak-1's under Kamosa's command left.

As we watched their take-off, those of us who remained to continue combat operations enviously thought that they would make up for lost sleep in the rear area and that because of the fierce battles ahead of us, it was possible that all of us would not be alive when they returned to the regiment.

We had two incomplete squadrons remaining, each with seven shabby Yak-1's. One squadron was under my command and the other under Kryukov. Now the load on us was even greater, for those of us remaining had to carry out the combat missions of a full regiment.

The areas for our squadrons' combat operations were moving ever further to the east of Rostov, along the Don where the enemy was breaking through across the river into the North Caucasus area. Covering our crossings and strafing German crossings became our primary activities.

Street battles began in Rostov itself and we were forced to rebase further south toward the stanitsa [large Cossack village] of Kushchevskaya. When our squadron arrived there after strafing Germans crossing near Semikarakorskaya Stanitsa we did not meet up with our aviation technicians and the service battalion for they were still enroute from Bataisk. There was no one and nothing available to refuel and rearm our airplanes, nor was there compressed air available. The fighter regiment and the service battalion that were located at the airfield were unable to help us, so we were forced to take time away from combat flights and relax until our rear area unit and aviation technicians arrived. I used this time to get acquainted with the neighboring regiment.

This regiment had recently arrived on the front and had been formed into a new organization of twenty airplanes and pilots. The pilots had no combat experience and the regimental command had begun combat operations using the groups' veterans. These were the squadron commanders, their deputies and the section commanders and they were quickly shot down or wounded. Only young ordinary pilots without combat experience remained in the regiment and they had no one to lead them on combat missions.

This practice of making up flight groups composed of the leadership had proven wasteful since the start of the war as it stripped away the pilots' leadership, but some people had not yet given it up.

Thus the regiment was unfit for action, although it had more than ten brand new idle Yak-1's fully fueled and ready for combat operations.

Regimental commander Belov asked me to take his pilots on a mission. So as not to waste time until our airplanes were refueled, I agreed. Not knowing our neighbor's piloting abilities, I decided in any event to use experienced pilots to make our flight more secure and I assigned pilots Naumenko and Berezhniy from my squadron to fly cover.

During our seven's approach to Manych a pair of ME-109's tried to attack us. Naumenko from the covering airplanes engaged them and drove them away from us. We made a strafing run with six Yaks and set fire to several vehicles on a dam and near it.

Thinking that the pair of Messerschmitts that we had met and that Naymenko had stayed behind to battle might radio for reinforcements and attack the six of us as we returned to the airfield, I decided to stop after three strafing runs to save some ammunition for aerial battle.

My supposition was correct. Soon after leaving Manych I caught sight of four Messerschmitts setting up for an attack.

After rocking my wings to warn my aircraft about the enemy's appearance, I energetically deployed at the enemy. To my surprise, no one from my group followed me. All five Yaks in a cluster were setting a course for Kushchevka. The Messerschmitts paid no attention to me and set up to attack the Yaks that were leaving at full speed.

I beat off the first attack using blocking fire. During the second attack I succeeded in shooting up the leading ME-109 at point-blank range and then the remaining three threw themselves at me.

Repelling their attack and attacking myself, I quickly used up my remaining ammunition and was then unarmed against three enemy fighters. Now only good piloting skills could save me.

Apparently the German pilots were convinced that they could not shoot me down or they were worried about their fuel supplies, for they suddenly broke off the attack, formed up in a group and returned to the north. After I was convinced that the enemy had left, I set a course for the airfield.

There calmly sat my group that had left me alone with the Messerschmitts. Belov met me at the CP [command post] and asked, "Well, how did they fly? Can I let my pilots fly missions?"

"They did fine during the strafing, but broke away from an aerial battle. They are still not psychologically ready for aerial combat. They can be allowed on combat missions only intermixed with experienced pilots. Otherwise Messerschmitts will intercept them."

"Will you fly with them one more time?"

"No! Lead them yourself, since you lost your leaders through stupidity. I will long remember my flight with your pilots. It taught me something."

This flight forced me to think about how it was possible to get psychologically accustomed to the pilots you see in battle, to think and act in spirit with them. Faith in the fact that they would not leave you in a fierce battle, as you would not leave them, inspires you to daring action and leads to victory. Without this there cannot be confident actions in battle and this leads to your death and the deaths of those supporting you.

Before evening our regimental staff and technicians arrived and also the battalion that serviced us. The aircraft were refitted and readied for combat operations.

Combat operations consisting of strafing German forces crossing the Manychskiy Canal began in the morning. We flew in flights of seven with an assigned pair to suppress anti-aircraft fire and protected us against losses.

While we were engaged in battle, we anticipated the return of pilots in the repaired airplanes every day, pilots and planes that we needed so much now. The delay in their return was upsetting both the pilots and the regimental command. A few days later we were told that the reason the group was being delayed was that the airplanes were not accepted for repairs. The aviation repair shops had halted their operations and had withdrawn to the east. Regimental commander Ivanov decided to fly back himself and get some agreement on accepting the aircraft for repairs, but his flight was also unsuccessful. While starting the U-2 motor the aircraft mechanic switched the ignition on

early and the propeller blade hit Ivanov's arm and broke it. He was sent to the hospital to recover.

This news saddened all of us. We had trod the long and heavy path from the start of the war under Ivanov's command and no one in the regiment enjoyed the respect that he had. We saw him as a senior military comrade and a friend.

Several days later the regimental chief of staff came into the dining hall before supper and gave us the order appointing Isayev as regimental commander in Ivanov's place. After hearing him the pilots silently looked at one another and the expected applause was lacking. Isayev was upset by the pilots' reaction and looking at us he declared, "You should all remember that by order of the command from today I am your commander and there will be strict order in this regiment. It will no longer be like it was under Ivanov."

"Don't threaten us! Even the Germans can't scare us. There was order in this regiment under Ivanov and because of it we became Guards," I said in answer to his threat.

"I will have a separate talk with you, Pokryshkin. You are the primary one who violates directions and instructions," Isayav threatened me and after turning around, he moved away from the dining hall. The chief of staff began to mince after him.

"Why did you start an argument with him? He won't forgive you for that," Fedorov warned me.

Isayev's assumption of command had an immediate effect on the sequence of our operations. Instead of setting out on strafing missions in squadron formation as we had done before, we now flew in sections. This led to the fact that there were only six aircraft in both my and Kryukov's squadrons. It was lucky that the pilots who were wounded and burned did live.

Our combat operations were moved even further east of Rostov. A breakthrough across the Don by two German tank armies in the areas of the Kotel'nikovskaya and Tsimlyanskaya stanitsas was forcing the Southern Front forces further and further toward the Caucasus Mountains. To be closer to where we were making our strafing attacks, the regiment was forced to rebase to an airfield near Kropotkin.

My squadron was the first to arrive there after a strafing attack south of Salsk. And again there was no one there to meet us. The aviation technicians and rear area unit were rebasing by road and were unable to arrive before our flight. We pilots shoved our planes into caponiers and began to wait near them for the land echelon. At this time we caught sight of nine German Yu-88 bombers flying from the north toward Kropotkin at a low altitude.

Despite that fact that our airplanes had little fuel and ammunition, at my command all six quickly took off and attacked the enemy. The suddenness of our attack forced the Germans to drop their bombs before they got to the target and to fly north. We totally expended the rounds and cartridges we had remaining from the strafing while following them and landed on our last drops

of fuel. In the turmoil of battle no one was able to determine exactly who we shot down or put out of action. The main thing was that we had stopped the enemy bombers from bombing the railroad junction that had been hammered by the echelons there.

After landing we again pushed our airplanes into the caponiers and camouflaged them somewhat. Without fuel and ammunition they were totally unfit for battle and were only targets for new possible enemy flights.

Because I wanted to find out about enemy aviation activity, I went out to the road that ran along the field and there I met some local inhabitants. After greeting them I asked, "Tell me, please, does Germans aviation often fly to the city here?"

"Every day at sunrise they fly in and bomb the station and the city. Thank you for disrupting their bombing."

"Thank you for the information. Tomorrow we will give them a good lesson and they will stop being so insolent," I promised, working out a variation for intercepting the Germans during their standard morning flight.

Soon Kryukov's squadron landed. They were also being rebased for strafing.

At twilight the staff headed by Isayev, the technical people and the service battalion arrived in vehicles. The airplanes were refitted with fuel and ammunition and we were again ready for combat flights.

When I gave Isayev the results of our strafing and our unexpected flight to intercept the bombers, I suggested that we organize a duty group in the morning to intercept the probable enemy bomber flight to Kropotkin.

"Let the PVO [air defense] organize that. Our mission is to carry out missions along the front line," answered Isayev.

"But Comrade Commander! The city is ours. We cannot allow Germans to bomb it with impunity. There will be no missions early in the morning and we can fly intercept and give the Germans a lesson," I said, trying to convince Isayev. But he stopped listening to my exhortations, got in his "emka" and drove off.

Despite Isayev's objection I did not want to give up my idea. I decided not to go to the village for supper and sleep, but to spend the night at the airfield. The pilots in my squadron agreed with me. I was unable to convince Kryukov in this matter. He decided to carry out Isayev's order and left with his squadron for the village.

After eating with the technicians, the pilots got ready to spend the night on covers under the wings of their own airplanes. At dawn, as we didn't find Iskrin who had spent the night in his plane, Naymenko and Berezhniy and I got into our cockpits. We were the first group ready and Fedorov's pair, located by their airplanes, was second. The sun had already started to rise and still no enemy. Disappointed by the failure of my idea, I got out of my cockpit and without taking my parachute off, I lay on the wing to nap.

Suddenly Chuvashkin's voice caught me. "Comrade commander, the Germans are flying in!"

Glancing in the direction indicated by Chuvashkin's finger, I caught sight of a group of airplanes flying toward the airport. There were twelve Yu-88's and six Me-110's. I jumped into the cockpit at once, started the engine a second later and taxied to take off. My supporting pair lifted off behind me. As I flew, I looked at the enemy swinging around above us and setting a course for Kropotkin and did not notice the second group of Me-110's approaching the airfield. We shot down two bombers with our swift attack and forced the Germans to drop their bombs in a field without reaching the city.

As we followed the departing enemy, we shot down another two airplanes and after expending our total combat load, we returned to the airfield. Fedorov's pair joined up with us enroute to it. During the approach for landing, to my surprise I saw craters from bomb explosions on the runway and in the caponiers of our squadron's airplanes. It turned out that fifteen Me-110's had made a bombing attack on our airfield and Fedorov's pair had engaged them, shot down one airplane and had not allowed the Messerschmitts to strafe. The bombs that were dropped landed on the runway and in the caponiers out of which our five airplanes had flown. Apparently the Germans had noticed which caponiers we had flown out of when we repelled their bombing attack yesterday and decided to destroy our airplanes on the ground. Our self-willed flight had saved the town and our airplanes from being bombed. If we had not set up the squadron watch, half of the regiment's remaining airplanes would have been destroyed and perhaps all, including those from Kryukov's squadron. The flight turned out sensible and successful. My trio shot down four airplanes and Fedorov's pair shot down another one.

I told the pilots that had gathered around me, "We five took off, fought and shot down five airplanes. Let's not count who shot how many. The main thing is that we all took part in the battle and therefore each of us will get credit for one airplane."

By our own initiative we saved the regiment's remaining airplanes from destruction so they were available for further combat operations. And indeed with frontal conditions being what they were, we could not count on being replenished with new ones.

The air army command ordered that all five of the pilots who flew in this action be presented awards for successful operations against thirty three Yu-88's and Me-110's

[March 85 pp 8-9]

[Text] No enemy aviation appeared in the area where we were based for the entire week after we repelled the flight against Kropotkin and the airfield. We continued intense combat operations with strafing attacks against the advancing German forces south of Salsk and also against tank corps that had forced the Don near Tsimlyanskaya stanitsa and were moving on Stravropol. The front line was moving closer to Kropotkin and volleys of enemy and

friendly artillery were heard at the airfield. The regiment was ordered to rebase to a new airfield east of Stavropol and operate against the left flank of the advancing enemy. We had few land forces there and the primary mission was assigned to aviation.

Flying, loading fuel and ammunition into the airplanes and again flying. This is the way it was every combat day until darkness fell. Flight personnel were beat, as pilots were unable to regain their strength with four hours sleep. Overstrain was apparent among the regiment's physically weak pilots, their reactions in battle were slowed and this threatened them with losses from anti-aircraft fire and the aerial enemy. They had to be given some rest, but there were no replacements for them. The only hope was to substitute the pilots who had left Bataisk to turn airplanes in for repairs.

Kryukov and I agreed and we asked Isayev for such a substitution. He agreed and ordered me to fly to Stavropol where, according to several sources, our flight group that had been unable to turn the aircraft in to the aviation repair shop was located.

I and the aircraft pilot flew around to the side of Stavropol for safety and appeared in a U-2 allocated by division headquarters over the airfield that was separated from the city by forests. There were neither people nor airplanes on the flight field, although alone in the corner stood a MIG-3 with yellow spots and there were also remains of a burned I-16 and some vehicles. There were puffs of smoke on one side in the forest and periodically there were explosions. Apparently a bomb storage building was burning. The situation was puzzling and worrisome. The U-2 pilot did not want to land, but resentfully did so at my demand.

As we landed I carefully looked into the forest along side the runway, trying to catch sight of someone but did not see beyond the land. During the landing the airplane's landing gear broke. The rough landing cut the bolt holding the landing gear stanchion to the fuselage and the airplane listed on the wing aerofoil.

After examining the damage the pilot began to feel even more nervous, expressing his dissatisfaction. "Well, that's it. The airplane is damaged, we can't take off and we don't know what's around us."

"Don't panic! We'll find some technicians, quickly repair the plane and leave," I said to calm him.

There was no one at the hard stand at the edge of the forest. The airfield was empty. When I tried to find someone near the burning warehouse and find out where our repair group had flown, I ran into heavy bomb explosions.

As I was on the ground covering my head with my arms I heard large hissing fragments rustling through the leaves of the trees. It was obviously no use looking for people near the burning warehouse -- there was no one there.

I had to return to the U-2. Near it I saw three civilian men talking with the pilot. "What's going on? Do you know where the aviation flew from here?"

"No, we don't know. But why did you land here? Germans have been in the city since yesterday. Fly out of here quickly!"

Finding a piece of heavy wire on the former airplane hard stand, we lifted the airplane off of its wing, placed the wire in the joint in place of the severed bolt and wrapped it around the landing gear stanchion. We could take off, but I decided not to leave the Germans the caulked and and unpainted Mig-3. I planned to burn it instead. After examining the airplane, I determined that it was completely fueled up, the battery was charged and it was totally ready for flight.

Having made the decision to take the airplane, I gave orders to the pilot. "The airplane has been repaired and I am going to try to take off in it. If everything goes normally, I will rock my wings and you take off. If there are serious problems, I will land, burn the plane and go with you in the U-2."

"Understand! But first help me start the engine."

After starting the engine I set out for the MIG. I put the case I had taken from it on the seat next to the parachute, sat down and started the engine. It worked perfectly, filling the entire landing field with its roar.

After taxiing down the strip, I took off and pulled the lever to retract the landing gear, but it didn't pull up. There was no compressed air in the system and the air compressor didn't work.

Flying with landing gear down is very dangerous, for it can cause the engine to overheat and freeze up. A forced landing with jammed landing gear can lead to an accident and death, as had happened to Kostya Mironoviy at the beginning of the war.

I had to land and destroy the aircraft on the ground, but when I returned to the airfield the U-2 was gone. There was only one thing to do -- risk flying to my own airfield. While I was flying right over the roofs of Stavropol I saw dozens of tanks with crosses on their sides in the streets. And then fear gripped me, fear because of our landing and because of all the actions at the airfield that the Germans had captured. It was only then that I understood what danger we had put ourselves in.

I reached our airfield at twilight. The landing strip looked poor. I made my landing approach by a white railroad building on the crossing. Earlier we had used this as a reference marker to start leveling the aircraft before landing. A green rocket which the landing control officer fired at the touch-down point permitted a landing.

I had almost leveled the aircraft over the earth when suddenly a red rocket denying landing went off in the air. Out of habit my hand pushed the gas forward, but I quickly changed my mind, realizing that I could not make a second pass with an overheated engine. I reduced the throttle and landed.

At the end of the landing run I suddenly saw on the edge of the landing strip a number of parked I-16 airplanes whose appearance was totally unexpected. I was able to energetically pull off to the side and speed past them.

After taxiing to the hard stand I found out from Chuvashkin that Markelov's regiment had flown in to our airfield during my absence. These were the airplanes that I had almost crashed into in the dark. And this in all probability would have happened if I had made a second pass after the landing control officer had accidentally fired the red rocket instead of a green one. But everything turned out well and there is no sense in reliving possible unpleasant events.

In the dining hall officers who had gathered for supper beset me with questions about the results of my flight to Stavropol. After I had related the whole story Kryukov reproached me. "You acted foolishly, Sashka. You could have fallen into German hands and we would have thought you a traitor."

"Nonsense! Risk is a noble thing! A person who doesn't take risks doesn't prevail," I said, trying to justify myself, although I myself understood that I had acted incorrectly.

After supper the pilot with whom I had flown to the Stavropol airfield came into the dining hall and told me why he had prematurely taken off before my signal from the air.

As he was observing the forest behind his position, the pilot had caught sight of German motorcyclists coming along to road from town to the airfield. He immediately took off to save himself from capture and was followed by automatic weapons fire from the Germans who were discouraged by their failure.

The airplane I brought back caused both my technician and myself a lot of trouble. When we rebased to a new airfield after ferrying the MIG I returned for my Yak, for there were no extra pilots in the regiment and thus Chuvashkin and I had two airplanes in our care.

Technical personnel were clearly displeased with my trophy. When we had to ferry it for the first time, Chuvashkin with the help of other technicians prepared the MIG-3 for flight, complaining, "Comrade commander, you have brought a burden into the regiment. We can't get rid of it, no one will take it to repair it and there has already been enough fuss about it."

Every time we ferried the MIG the technicians and I strongly reminded the designers that they have violated the standards of designing aircraft equipment. And these dangerous flights had to be made more and more often. After successfully forcing the Don, the Germans continued to advance, forcing our few remaining forces up against the Great Caucasus Ridge. Tank corps and divisions from almost two tank armies that were moving around the right flank of the Southern Front broke through to capture the oil fields at Grozny and Baku in an effort to deprive our combat equipment of fuel and thus win a

victory in the war with our country. The Fascists so came to believe in the successful rout of the Southern Front that the main forces of one tank army returned to Stalingrad.

The withdrawal of our land forces forced our regiment to change airfields, rebasing ever eastward. By mid-August we had deployed as far as the Budennovsk area. To our north and east were the beginnings of the scantily populated endless steps and to the south were the foothills of the Main Caucasus Ridge. During these August days our primary combat operations consisted of squadron strafing missions on columns and artillery positions and also escorting Pe-2 bombers while they made bombing runs on the massed enemy attacking toward Grozny. Successfully carrying out these missions without a loss could not extinguish our personnel's feeling of uncertainty about our further deployment and about the expected reinforcements of pilots and airplanes.

After one squadron strafing mission, as I approached the airfield I made a dive and did a double barrel roll to signal the success of our flight to those on the ground. As I was making the final approach for landing I noticed two YAK's listing on broken landing gears. Judging from the propeller coloration these were clearly not our airplanes. After landing between them and taxiing to the hard stand I asked Chuvashkin, "Who is that over there who broke their gears?"

"Pilots from a neighboring regiment."

On the way to the CP I saw the pilots who had flown in, sitting by their aircraft. I noticed two pilots among them who I knew, Dmitriy Glinka and his brother Boris. It became evident that Dzysov's regiment had flown in.

After reporting the results of our strafing mission at the CP, I asked the chief of staff, Datskiy, "What's this, they flew in to help us and they started off with damage?"

"Tanks almost got them and therefore they were flying defective airplanes."

"So that's it. Yesterday evening Neumenko and I landed at their airfield which is close by. Tomorrow German tanks could also be at our airfield. We need to leave today," I said anxiously.

"We don't have to fly out. We got instruction to give our airplanes to Dzusov's regiment and go to Baku for retraining and to get new equipment."

I couldn't get the information I heard from Datskiy into my mind.

"What's that? They will all be fighting while we will be in the rear area getting a tan?" I said, more for myself than for Datskiy.

Deep in thought I returned to the hard stand to my YAK. Near it were technicians from the regiment that was taking the airplanes. They had opened

the cowling and were checking the engine. When he saw me Chuvashkin happily said, "Comrade commander, I turned in the airplane. Now it's our turn to rest."

"How can you be so happy? They will all be fighting and we will be resting, watching the battles from the side," I reproached him.

I did not like Chuvashkin's genuine happiness, although I knew that I shouldn't have reproached him. He was a real warrior, but was very tired, as were all the regiment's technicians. They had experienced the pilots' fate, serviced flights from dawn to sunset, during the night had repaired the airplanes that were damaged in battles, and had endured bombing runs from enemy aviation during raids on the airfield.

By evening all the airplanes had been turned over to Dzusov's regiment except for the ill-fated MIG. When I tried to persuade him to take it, the regimental commander categorically answered, "We are a combat regiment, not a repair shop and we will not take a half-repaired airplane, especially one that is not even the same type as ours."

I was faced with taking it with its broken landing gear further on, to turn it in somewhere along the way...

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FOREIGN MILITARY AFFAIRS

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FOREIGN MILITARY AFFAIRS

AFGHAN COUNTERREVOLUTIONARY FORCES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 7-14

[Article by Col L. Shershnev; "The Afghan Counterrevolution: Headquarters on Terror and Ideological Diversions"]

[Text] Like in other countries building a new society, today, in Afghanistan, the people's government, established after the victory of the international-democratic revolution in April 1978, encounters hostile, subversive actions from internally- and externally-unified counterrevolution. V.I. Lenin warned that after defeat, exploiters inevitably do not abandon hope for a restoration, and this hope is transformed into restoration attempts. The overthrown exploitators "with energy increased tenfold, with maddening desire, with hatred increased by hundredfold, rush into the fight to return the paradise taken away."[1] As long as they maintain ties with the international bourgeois and rely on its complete support, they do not consider their cause lost.

The internal opposition, in the persons of those who lost their feudal and landlord privileges, parts of the bourgeois and the reactionary circles of the Muslim clergy, with the external forces of imperialism, reaction, and their accomplices, joined together in hatred toward revolutionary Afghanistan. This is most actively displayed by the U.S., Pakistan, Japan, FRG, France, Great Britain, Iran, Israel, Egypt, and Saudi Arabia. China also found itself on the side with the enemies of democratic Afghanistan, having found some kind of "parallel" strategic interests with the U.S. and NATO in the so-called "Afghan question."

Carrying out the most genuine policy of exporting counter-revolution, the U.S. and its allies unleashed and, for almost seven years, have conducted an undeclared war against the Democratic Republic of Afghanistan (DRA). Its main elements are armed intervention into internal affairs of the Afghan Republic, attempts to establish an economic blockade, the political isolation of the DRA in the international arena, and a widescale psychological war.

Armed intervention by international imperialism, into the internal affairs of independent Afghanistan, manifests itself first of all in the financing, formation, arming, training, and sending from the territories of Pakistan

(length of border with the DRA is 2,180 km) and Iran (820 km) numerous bandit formations. From the international law viewpoint, such actions are clearly qualified as acts of aggression. They completely fall under the definition of aggression given in the December 14, 1974, U.N. General Assembly Resolution which states that aggression is "sending by the states, or in the name of the states, of armed bands, groups, irregular troops or mercenaries which conduct actions against other states through the use of armed force." Subversive actions by the U.S. and its allies against Afghanistan are nothing less than an act of state terrorism.

According to foreign press data, the U.S. real expenditures or help to the Afghan counterrevolution has already reached about one billion dollars. In FY 84/85, an additional 280 million dollars are allotted for this purpose. According to the "New York Times", Saudi Arabia, FRG, and other capitalist countries are spending about 100 million dollars per year on anti-Afghanistan operations. The largest part of these resources goes for weapons, training, and support of counterrevolutionary organizations and bandit formations, and payment for their crimes against the Afghan people.

Aiming to maintain most favorable conditions for expanding the scale of the undeclared war against the DRA, the U.S. and its allies are making considerable efforts to create and strengthen the bridgehead of aggression on the Afghan borders, and "safe" rear bases of counterrevolutionaries. Pakistan's military regime, as the main accomplice in the aggression against the neighboring country, is playing a shameful role as a mercenary of international imperialism and reaction. Pakistan's service is generously rewarded by Washington and Muslim reactionaries.

The U.S. also made numerous efforts to push Iran toward confrontation with democratic Afghanistan. Partly, this was aided by the ruling Iranian clergy's hostile attitude towards people's rule in Afghanistan, which the clergy sees as a barrier against the spread of PanIslamic ideology in that country. Although Iran's intervention has not reached Pakistan's level, nevertheless, Iran's direct participation in undeclared war against the DRA remains a fact.

The foreign press reports that work is being conducted to equip Pakistan and Iran territories to carry out hostile actions against Afghanistan, with a long term perspective in mind. Pakistan and Iran became shelters for Afghan counterrevolution's main forces. The majority of the overthrown exploitors fled here, and in turn, by treachery and force, made fellow countrymen leave the homeland and settle in a strange land.

The major counterrevolutionary parties' headquarters are located in Pakistan, and their representatives, as well as leading organs of several dozen counterrevolutionary organizations with the pro-Iranian orientation, settled in Iran. Training centers and training points for Afghan bandits are deployed in those countries (more than 100 in Pakistan, mainly in the refugee camps; in Iran they function mainly on the bases of schools and training centers for the guards of Ialamic revolution). Trans-shipment bases for weapons received from the U.S. and allied countries, used to equip bandit formations, are located on Pakistan's territory. For the same purposes, a special airport is being constructed near the Pakistani city of Bannu. Pakistan's special services

transport weapons directly to the border and are also involved in forming caravans for their further transfer into Afghanistan's territory.

At the present time, in and outside Afghanistan, there are more than one hundred different anti-government organizations and groups most diverse in their character and composition: Islamic, nationalist, separatist, left and right extremists, bourgeois, and monarchial. The largest of them are: "The Afghan Islamic Party" (leader Kh. Gulbeddin), "The Afghan Islamic Society" (B. Rabbani), "The National Front of Afghanistan's Islamic Revolution" (S. N. Gilani), "The Afghan Islamic Revolutionary Movement" (M. Nabi), "The Afghan National Liberation Front" (S. Modjaddadi), "The Afghan Islamic Party" (M. U. Khales), "The Afghan Islamic Movement" (M. A. Kandagari),. "Allah Party" (K. Yakdast), "Nasr" (Bekheshni), "Agreement Council of the Islamic Revolution" (Kh. Del'dzhu), "Revolutionary Patrots Movement" (Ya. A. Yari), "Holy War Front of Nuristan" (M. Anvar).

The U.S., ruling circles of Pakistan, Iran, and other states hostile to the DRA, undertake constant efforts to join the counterrevolutionary organizations into a united front for the struggle against the people's power. Several times already, the creation of various unions and blocks of counterrevolutionary forces, formation of a single line, strategy and tactics for their subversive actions have been announced. Nevertheless, the presence of serious disagreements inside the counterrevolution prevent reaching real unity. For example, essential differences in the approach to questions about the final goals of the anti-government struggle and means for their accomplishment still remain, which, according to foreign specialists view, are connected to a divergency of interests held within bands of social forces. Lack of national-ethnical homogeneity and religious differences among its participants serve as dividing factors. As a rule, the Afghan counterrevolution is grouped on a kin-tribal and national ethnical basis and, quite often, according to affiliation with various branches of Islam. Personal differences, greed, and the quest for power among the counterrevolution's leaders also exist. Frequently, discords and struggle for spheres of influence between various political formations result in armed controntations.

Large anti-government organizations generally have the same structural type. They comprise leadership organs (most of them are in Pakistan and Iran), armed formations (distributed inside and outside Afghanistan's territory), and Islamic committees as local ruling organs (they are active in refugee camps and partly in areas of active counterrevolutionary activities conducted on Afghanistan's territory).

The leading organ (as a rule, an executive organ or a central committee) includes several departments: military, which usually includes the counterrevolutionary armed formations General Headquarters (to which the operational staff and the intelligence service are subordinated), propaganda, finance, control, information, judicial, and others. The executive committee (central committee) is subordinate to Islamic committees, created in areas of active band activities. The committees have the following responsibilities: creating and implementating military and administrative control over areas of active mercenary activities; recruiting local residents into bands and directing their training in the training centers; leadership over the bands

and coordination of their activities, distributing among them weapons, ammunition, food, and medical supplies; organizing interactions between the various anti-government groups; conducting counterrevolutionary propaganda; requisitioning from peaceful population for bandit formations; building fortifications, creating secret supply warehouses and bases, etc.

The bandit formations, created by international imperialism, headed by the U.S., are the counterrevolutionary movement structure's main elements. They directly carry out against Afghanistan undeclared hostilities which are designed by the enemy of the Afghan people. They include groups (20 to 50 people) and also detachments (up to 200 people). Several detachments make up a "front" directly subordinate to the party leadership to which it belongs. There are attempts to closely parallel army structure by creating batallions and regiments. The leaders of anti-government movements and their patrons are already thinking about forming so-called "Islamic rebel army" for an "active war."

Within bandit formations (as well as within the conterrevolutionary parties themselves) one can trace the class principle: as a rule, their leaders are feudal lords, landowners, rich peasants, members of the clergy, former high ranking officials and military personnel. The regular members of bands are mainly tricked or forcibly recruited uneducated peasants, nomads, and representatives from the working strata of the population. The Afghan revolution is not an exception to the rule that, during the developing period of the revolutionary struggle, part of the exploited population, without comprehending the meaning of occurring events and deceived by counterrevolutionary slogans, follows the exploiters. The bands include many anti-social elements used to living by robbery and plunder.

Reaction in Afghanistan possesses considerable experience in the political, ideological, and armed struggle for its country's preservation. It is enough to remember the history of the 1929 overthrow of the progressive, for those time, regime of Amanull-Khan, and the repression of actions by democratic circles. Moreover, reaction always made plans which relied on the underdeveloped level of the working masses' class consciousness, their adherence to Islamic dogmas, to centuries-old submission to feudal lords and landowners, and also on inter-clan, tribal, and family ties. Today the counterrevolution attempts to create its foundation primarily in rural areas, in the "tribal zone," and also tries to involve the petty-bourgeois city population in the anti-government struggle. The counterrevolution does not lose hope that, under certain conditions, it will be able to change the correlation of forces in its favor and take back lost positions.

The counterrevolutionary movement's leadership invariably widens the scope of preparing reinforcement and reserve for the bands. Every person recruited for bands undergoes a throrough "reliability" check.

Depending on their specialization, training time in preparation centers varies from a few weeks to a few months. According to foreign press reports, the training program includes mastering weapon equipment and becoming skillful in its use, mine warfare, sabotage activities, and also religious-political indoctrination. Special attention is given to individual training and actions

in small groups under night conditions. Often bandits undergo training directly in Pakistani Army training centers and units. In Iran, after additional military training in the ground forces training centers and in the Islamic revolutionary guard corps, the Afghan counterrevolutionaries take part in combat on the Iran-Iraqi front. Training of mercenaries is conducted by American, British, French, Chinese, Egyptian, Pakistani, Iranian, and other instructors. Among them, there are moral-psychological and ideological warfare specialists. Those instructors often sneak into Afghan territory as part of the bands to check the quality of counterrevolutionary training and conduct reconnaissance on local conditions.

The training system created allows Afghan counterrevolution to have constant reserves for replacing band's combat losses. Since most training centers adopted a common training program, developed with the participation of the CIA and other special services from countries hostile to Afghanistan, the bandit tactics on Afghanistan's territory are characterized by common elements, in spite of their affiliation with various anti-government organizations.

According to foreign specialists, direction of counterrevolutionary movements activity in the DRA at the present time is geared toward solving the following main tasks:

-- Amass the forces and resources to conduct a prolonged struggle by subversive methods against the people's government;

-- Destabilize the country's conditions, inflict maximum damage on the national-democratic government in order to weaken it politically, militarily, economically, and ideologically, and provide favorable conditions for an increase in anti-government actions;

-- Create control zones in so-called free territories in the regions bordering Pakistan in order to proclaim there a "provisional government," achieve its recognition from the states hostile to the democratic Afghanistan government, and thereby secure from them an increase in assistance and support for opposition based on a legal foundation.

Its own "theoreticians," emerged inside the counterrevolutionary movement. They prepare manuals for the mercenaries, putting the CIA instructions and directions on subversive activity into the Islamic language applicable to Afghanistan's conditions. These training manuals (for example, "150 Questions and Answers for Guerrilla Unit Fighter," "Tactics of Guerrilla Warfare," "Guerrilla Warfare and Its Foundations from Islam's Point of View") are published in large numbers and are circulated among the mercenaries and the peaceful population.

The build-up of counterrevolutionary forces and resources is organized in the following manner. First of all, a complete count of all males in the refugee camps and in the regions with active bandit activities on DRA territory is conducted. Then, they are forced to undergo military training with periodic participation in terrorist activities. The Leaders of the counterrevolution are trying in every way to create reserves for the band's personnel replacement, accumulate weapon stockpiles, and strengthen base regions in an

engineer respect. As the result of the actions undertaken by the people's government, in strengthening the borders with Pakistan and Iran, the counterrevolutionaries attempt to find new ways to deliver weapons and transfer bands. As reported in the foreign press, caravans are often sent across the border directly to the bands by splitting them into small groups, avoiding intermediate bases and depots, and observing all camouflage measures. A caravan march order includes an advanced patrol, point support and a main transport group with direct and rear guards. The movement is conducted mainly at night.

Not only the quantitative increases but also the change in weapons and ammunition provided to the counterrevolutionaries should attract attention. Deliveries of automatic weapons, as well as heavy machineguns, mortars (60- and 81-mm caliber), light artillery systems (76-mm mountain guns), recoilless guns, anti-aircraft weapons (37- and 40-mm anti-aircraft mounts, and REDEYE man-portable surface-to-air missiles), rocket launchers, hand grenades, anti-tank and anti-personnel mines have sharply increased. A notable increase in the numbers of heavy weapons held by bands, and their possession of chemical weapons are also reported. In April, 1984, about 4,000 pieces of chemical ammunition were sent into Afghanistan.

The Afghanistan counterrevolutionary leadership attributes great importance to creating fortified regions and bases designated for support of bands' combat activities against the people's government. They are located in hard-to-reach areas (usually inside ravines) which, as a rule, are remote from communications routes and troop garrisons. They are also well protected, often having a multi-layered defense system with anti-aircraft installations, minefields, blockhouses, caves for shelter, etc. Band command organs, weapon stockpiles, ammunition equipment, food and medical supply reserves, and training centers are located inside the fortified areas and bases. Strict security arrangement and rigid control over every person's movement is established on their territory.

The foreign press reports constant improvement in counterrevolutionary tactics. They are developed with regard for the actual conditions in the various regions of the country, physico-geographic conditions, availability of different types of weapons, and other factors. Usually, bands attempt to avoid engaging regular troops in combat and favor small group actions, constantly maneuvering and using the surprise factor. As a rule, combat actions conducted by mercenaries are transient. In case of failure, they quickly disengage from combat and, using previously designated routes, retreat over the border into the mountains, hide in ravines and underground irrigation ditches, and disperse among the peaceful village inhabitants. Also mentioned are the counterrevolutionary attempts to act with large forces with the goal of taking over the administrative centers in a number of southern and eastern provinces of the DRA.

Organizing ambushes is one of the main ways bands conduct combat activities. They are most often set on the roads for the purpose of destroying or capturing columns with economic and military cargo. According to foreign specialists' views, they are aimed at accomplishing such inmportant tasks as desrupting transportation, capturing valuable materials, and others. Ravines,

narrow points, passes, ledges above the road, galleries, oases, water springs, and likely places for stops and rest are usually selected for ambushes. There are known occasions when the bandits set ambushes when troops were returning from operations, counting on the personnel fatigue factor and a known decrease in awareness.

As a rule, ambushes include reconnaissance, mining, fire fights, capture, escort, and reserves. Mercenaries endeavor to avoid a pattern in setting ambushes. At the same time, typically, for example, during attack on columns, the main method of attack remains a concentration of fire on the leading and radio communication vehicles in order to create a traffic jam, panic, and disruption in command and communications. Single vehicles and small convoys travelling without guard or cover are attacked most frequently.

In practice, raids are widely used in counterrevolutionary activities. Their targets are guard posts, small troop garrisons and self-defense units, administrative and political offices, plants, warehouses, etc. When planning and carrying out a raid, much attention is given to surprise and deception. A band attacking a target usually consists of the following groups: capture group (to neutralize guards), group to realize the raid's goals, combat engineer group (provides mining and passage clearing), and the cover group.

The inherent attribute of bandit tactics is subversive and terrorist activities. The counterrevolutionary leadership considers these acts as the main means of struggle against the peoples' power while minimizing their own losses. Their main goal is to scare the population and to create disorder. Involvement in terrorist activities is carried out by groups specially trained in Pakistan, Iran, U.S., and in a number of West European countries. They physically eliminate and kidnap political and government workers, patriots, military personnel, and organize sabotage in public places, airports, fuel storages, water towers, electric power stations, power lines, and transportation. One of the forms of terrorist activity is firing upon living districts and troop billets by using "nomadic" guns, mortars, and other weapons. Such firings are intended to hold Afghanistan's military personnel and population under constant moral and physical tension, to exhaust their strength, and undermine faith in government's ability to provide their security.

In hostile counterrevolutionary activity, "economic war" stands out as an independent trend. Foreign specialists note that its main goal is to undermine a country's economy, create difficulties in supplying the population with food and the basic essential items so to arouse discontent with the policy of the Afghan National Democratic Party and the government. Mercenaries try to prevent an improvement in the working masses' standard of living as a result of the measures implemented by revolutionary government in the interest of the people.

Bandit units organize an economic blockade of separate regions, break traditional ties between the city and the village, inhibit the import of grain and firewood for sale in cities, sabotage government purchase of agricultural products, export grain and drive away cattle into Pakistan and Iran, plunder the country's national treasures, organize predatory plunder and export abroad

precious and semi-precious stones, inflate prices, and conduct extortion from the population. The counterrevolutionaries destroyed 1,814 schools, 31 hospitals, 11 health centers, 906 peasant cooperatives, burned more than 800 heavy vehicles, destroyed 14,000 km of communications lines, blew up several bridges, and inflicted severe damage on dozens of industrial and agricultural enterprises. They conduct numerous sabotage acts to undermine normal work of plants, factories, and cooperatives. For this purpose, they wreck electric lines, pipelines, kidnap and threaten workers, technicians and engineers, hinder their arrival at enterprises, mine peasant fields, destroy seeds and fertilizer. The total loss from counterrevolutionary crimes already exceeded 35 billion afghanis.

The conduct of anti-government propaganda among bandits, as well as among civilian population and the DRA's armed forces personnel, is the most important trend in activities of Afghanistan's counterrevolution. Subversive ideological activities against the DRA, which reached the scale of wide psychological aggression, is organized, financed, and directed together with the armed struggle by the international imperialism. Specialists in conducting psychological war against the forces of socialism, peace, and progress are active throughout the large counterrevolutionary organizations. A special propaganda apparatus was created with their help. The bands' leaders have deputies for religious-ideological tasks and also "agitators" designated to conduct propaganda among the population. Mobile subversive propaganda groups, sent either from Pakistan and Iran or formed locally, function within regions of active counterrevolutionary activities. They are equipped with loudspeakers, sets of tapes with suitable recordings, and volumes of hostile literature. Mobile broadcasting radio stations work in separate regions. There are attempts to organize film propaganda. Courses for training specialists in religious-ideological work began to function in Pakistan and Iran. The network of printing-houses, radio stations, sound and even movie studios working for the counterrevolution is increasing. The circulation of newspapers, magazines, leaflets, tape recordings, and moview used for subversive propaganda grows accordingly.

It is noteworthy that, before the revolution, many Western radio stations, including "Voice of America," did not operate in the national languages of Afghanistan, which are Pushtu and Dari. At the present time, more than 50 Western radio stations direct propaganda at the DRA. The volume broadcast at this country during past five years increased by a factor of 30 and includes 110 hours per day. Recently, agreement has been reached to open, in Peshawar (Pakistan), branches maintained by the CIA's subversive radio-centers "[Radio] Liberty" and "[Radio] Free Europe."

The counterrevolutionary movement leadership especially cares about strengthening its influence over bands' regular membership. This was brought about by the people's government's marked successes in implementing and defending the revolutionary transformation, by a tendency among part of mercenaries to withdraw from the armed struggle against the people's government, by an increased number of attempts to return to a peaceful life, and also by continuous ethnic religious and personal strifes. At the present time, in trying to strengthen the moral spirit of counterrevolutionaries, much attention is being paid to their religious-ideological indoctrination. At the

same time, material incentives for service in the bands are being increased. Depending upon service time with the bands, monetary allowances are increased, and participation in operations, and the fulfillment of concrete tasks and "resolute" activities are rewarded. Those who have distinguished themselves receive an additional food ration. At the same time, punishment measures for evading active participation in anti-government activities are made more severe.

Counterrevolution attributes significant importance to demoralizing the DRA's armed forces. The smallest opportunity is used to arouse discontent among military personnel, and instigate their desertion from the army and the people's militia. Toward this end, the sending of threat letters to soldiers and officers, repressions against their relatives and friends, promises, blackmail, and bribery are widely practiced. Attempts are also carried out in infiltrating agents into the armed forces and state apparatus.

Foreign specialists note that hostile propaganda among the population is aimed at converting it to the counterrevolutionary side and provoking anti-government protests. It is carried out selectively, considering existing social and national psychological stereotypes within the targeted audience, and using the most diverse and refined forms and methods. Counterrevolutionary leadership attempts to implant anti-Soviet feelings in the country. In order to discredit soldiers from the limited contingent of Soviet Armed Forces in Afghanistan, bandits wear Soviet military uniforms and conduct punitive actions against the peaceful population.

The counterrevolutionaries' most favorite methods used in conducting anti-government propaganda are lies, falsehood, spreading of rumors, gossip, and fairy tales which are often accepted as truth by the backward part of the population. The anti-national, reactionary essence of such propaganda is camouflaged by religious coloring which, in a number of cases, allows the counterrevolution to accomplish its aims.

Thus, facts reveal that, in recent times, the scale of the war against democratic Afghanistan are widening. The counterrevolution is improving the tactics for armed struggle while combining them with ideological subversions. Leadership of the anti-government movement plans to institute more active combat activities, while striving to unite separate bandit organizations and units, acquire and assimilate modern weapons, specially anti-aircraft and anti-tank, and to develop and implement new tactical methods. At the same time, it is planning to carry out a number of measures to increase the effectiveness of ideologic-psychological warfare.

Subversive activities by internal and external Afghan counterrevolution meet a firm rebuff from the DRA's armed forces. According to foreign press data, during the 1984 spring-summer campaign alone, the bands lost 23,000 rebels killed and around 2,000 captured; 200 recoilless guns, 230 grenade launchers, 11,000 small-arms weapons, and 1.5 million pieces of ammunition were destroyed and captured. Under the influence of the NDPA and the DRA government's humane policies and explanatory work, larger numbers of counterrevolutionaries and their accomplices realize the hopelessness of their struggle, enter in negotiations with the government, and voluntarily stop armed resistance. Many

tribes, siding with people's government, especially in the border regions, have great importance in stabilizing country's situation. Further rallying between revolutionary-democratic and patriotic forces of Afghanistan, mobilization of people and state resources for repulse of imperialistic intervention and armed bandit formations is taking place.

However, counterrevolution still retains significant potential capabilities for conducting a protracted war against people's government, which must not be underestimated. The NDPA's Central Committee XIV Plenum, which took place in September, 1984, again confirmed that, as long as the counterrevolution has not laid down its arms and continues to commit perfidious crimes on Afghanistan soil, the military question was and will remain most important. Measures were drafted creating a complex system for defense of the revolution and for narrowing the counterrevolution's social base.

At this difficult hour, the people of Afghanistan are not alone in their just struggle against reaction and imperialism. On their side are the sympathies and support of all forces for peace and progress. As noted in the greeting sent by CPSU Central Committee to the NDPA Central Committee, on the occasion of its twentieth anniversary, "guided by the noble principles of international solidarity, the Soviet people are giving the utmost assistance to the freedom-loving people of Afghanistan in the struggle against counterrevolution and in building the new life." In accordance with the December 5, 1970 Soviet-Afghanistan Treaty of Friendship, Good Neighborliness, and Cooperation and, on request from DRA's government, the limited Soviet military troop contingent, helping the young republic defend its freedom and independence, is present on its territory. In a difficult struggle, The Afghan revolution defends its achievements. Attempts by internal and external counterrevolutionary forces which again place the people of Afghanistan under the yoke of feudal slavery and imperialist exploitation are bound to failure.

1. V.I. Lenin. COMPLETE WORKS, vol. 37, p. 264.

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RADIOLOGICAL WEAPONS REVIEWED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 14-18

[Article by Col (Res) G. Ivanov, candidate of military sciences; "Radiological Weapons (according to the views of foreign specialists)"; passages rendered in all capital letters printed in boldface in source]

[Text] From time to time the foreign press comes out with articles related to questions dealing with so-called radiological weapons and radiological warfare. For a number of various reasons it does not always consistently and correctly assess the capabilities and employment of this kind of weapon. It is, therefore, worthwhile to examine, in greater detail, what is meant by a radiological weapon in as realistic manner as possible regarding its creation and use.

The concept of "radiological warfare" incorporates the conduct of armed combat using means whose damaging effects are based on the effects of radioactive emanations on human beings. The term "radiological weapon" has, until recently, been understood as radioactive materials and devices specially created to disseminate them (excluding nuclear explosive devices) for the purpose of inflicting damage through radiation emitted while these materials are decaying. After the Americans created neutron weapons, whose destructive effects are based on the lethal effect of radioactive emanations, the arsenal for conducting radiological warfare expanded.

As is well known, the nucleus of radioactive isotopes is capable of spontaneously decaying and, in so doing, emitting alpha or beta particles or gamma rays. The nucleus can also undergo spontaneous fission (natural only to heavy nuclei) where the nucleus spontaneously splits (usually into fragments of medium mass), and two or three neutrons fly out.

The primary lethal effect of radiation on humans consists of the destruction of the human cell. When large doses of energy pass through the cells, they are so great that they can completely destroy the cells, but small doses can destroy the cells' capacity to restore themselves. This makes it difficult to replace certain kinds of cells which the body is constantly losing, resulting in the body not functioning properly, and ultimately being fatal. The most effective kind of radiation affects the layer of cells in the blood-creating tissue, especially the marrow. Harm to the body from radioactive emanations comes as a result of external as well as internal irradiation as radioactive

products land on the human body through breathing, the gastro-intestinal tract and wounds.

The possibilities of conducting military operations using radioactive substances began being studied in the U.S. during the late 1940s and early 1950s. The basic concept rests on contaminating the terrain or industrial and other sites with radioactive substances for the purpose of destroying the enemy's troops and population, paralyzing the maneuvering of enemy units and subunits, as well as denying the use of various kinds of objects of an operational or strategic importance. It is conjectured that radiological substances can be used in the form of liquid solutions, aerosols, powders and can be delivered on a target by means of aviation bombs, artillery projectiles, torpedoes, cruise missiles, and other munitions. Radiological substances do not have any color or smell, so can only be detected with dosimetrical reconnaissance means.

Foreign specialists stress that radiological substances could be used by states possessing nuclear weapons (but which are taking care not to initiate their employment or which desire to avoid destroying enemy sites, planning to capture them later). They can also be used by states which do not have nuclear weapons, but possess nuclear reactors and radio-chemical facilities.

The foreign press has looked at the following radioactive substances from the standpoint of evaluating their possible use to contaminate the terrain of military targets.

THE PRODUCTS OF FUEL FISSION REACTIONS IN NUCLEAR REACTORS. Western specialists consider that such materials could be quite alluringly employed in radioactive substances because of their cheapness (in essence they are by-products of the atomic industry). Furthermore, a lot of countries can potentially have considerable quantities of these by-products where there are atomic power stations and production reactors (at the start of 1984, 25 countries had 317 atomic energy reactors with a total yield of 191 million kilowatts). An atomic power station with an output of 2 million kilowatts produces approximately one ton of by-products, the majority of which are radioactive.

However, in order to use these by-products, the majority of which are radioactive, they first have to be separated at special facilities (radio-chemical plants) from the spent plutonium contained in the irradiated fuel. The construction of such radio-chemical plants, with remotely controlled complex chemical processes and special equipment and protective shields, require substantial resources, technical expertise and are complex. Nevertheless, a number of countries are currently accumulating a lot of these kinds of materials. Specifically, in the U.S. in early 1984, the amount of by-products located above ground amounted to 380,000 cubic meters and in underground storage facilities--about 2.3 million cubic meters.

The main obstacle to using such by-products is the long half-life of radioactive substances. This does not permit one to make use of contaminated areas for many years or decades. There is also the danger that during this time, radioactive substances can be transmitted by winds or precipitation into

unaffected areas and water basins, making them, to one degree or another, dangerous for human habitation.

PLUTONIUM AND OTHER ACTINIDES PROCESSED IN NUCLEAR REACTORS. The foreign press reports that one advantage of using plutonium as a radioactive substance would be the relative simplicity in handling it while the radioactive substances are being prepared. This is explained by the fact that when it decays, it gives off only alpha particles, which are characterized by their weak penetration capability. The harmful effect of plutonium on humans comes about primarily as a result of its extremely powerful radiotoxicity. The presence of even a small amount of plutonium in the lungs (about 20 mg) of humans will have a lethal outcome in a month's time. For plutonium to have such an effect, it must be dispersed in the form of an aerosol or in extremely small particles, where the absorbtion of a lethal dose will occur in a short time (on the order of one hour), otherwise it will be carried away by the wind.

Calculations made abroad show that in order for a lethal dose of plutonium to be absorbed in one hour, the concentration of plutonium in air ought to be 30 mg per cubic meter. But the contamination of hundreds of square kilometers (with a layer of contaminated air three meters high) would require an expenditure of tens of tons of plutonium, which would clearly be excessive in relation to the possible positive effect. Nevertheless, it has been considered that contaminating terrain with plutonium (in quantities hundreds of times less than the quantities just indicated) would force the enemy to evacuate the population and to take measures to decontaminate it.

However, the primary limitation lies in the rather long half-life of its isotope--Plutonium 239 (about 24,000 years), which would practically eternally exclude the region from economic exploitation. It ought to be noted that when Plutonium 238 is used (with a half-life of about 86 years), there is the same radiological effect as contamination with Plutonium 239, but it takes a concentration 300 times smaller. However, the use of Plutonium 238, it is considered abroad, would hardly be profitable from a military standpoint since the distribution of the isotopes requires complex equipment, and contamination in this instance would be longlasting.

ISOTOPES WITH SHORT LIVES (specially processed in nuclear reactors where they are radiated with a flux of neutrons located in the reaction zone of target elements of materials obtained in a certain way) at first glance have the maximum advantage. Such isotopes like Potassium 38 or Calcium 49 (with a half-life of several minutes) would assure a very high level of radiation for a short time and their practical effects would be felt within an hour.

Other isotopes, like Silicon 31 or Manganese 56, have a half-life on the order of several hours. In the opinion of foreign specialists, an area contaminated by these isotopes could be considered safe after a week. However, the problem in this case is having to process isotopes with short lives right before they are employed, since they cannot be stored a long time (as a result of their decomposition, a quantity of it will quickly disappear). They can only be produced in nuclear reactors with a somewhat altered design, and the time the target elements are irradiated in the reaction zone is limited to non-extended

periods, otherwise they will begin building up radioactive isotopes with long lives. Connected to this, the specific activity (the activity per unit of material mass undergoing neutron radiation) of isotopes with short lives will be very low--several thousand times less than radioactive by-products from nuclear reactors, thereby making radiological weapons based on them ineffective. Taking the practical impossibility of creating munitions reserves with such materials (due to their rapid decay) and the problem of protecting the personnel processing them (a high level of gamma radiation) under consideration, foreign specialists consider there is little likelihood of short-lived isotopes being used.

Judging from reports from the foreign press, examining issues on the use of radioactive substances, the following additional limitations of both a purely military and technical nature have been expressed, making the utility of employing them in combat even more doubtful.

-- Munitions loaded with gamma reactive substances should have heavy protective casing to protect the airplane crews from harm while they are delivering the radiological weapon on the target, as well as the personnel of artillery subunits employing such weapons, etc. This substantively diminishes the useful load of the munition.

-- The shipping of radioactive substances or munitions loaded with them is also fraught with certain difficulties, since they require a guarantee that, while they are being transported, the means of conveyance does not have any accident, thereby freeing the radioactive substance and possibly resulting in the contamination of the entire area with all of its attendant consequences. Similarly, the loading of such munitions with radioactive substances ought to be done, taking every possible precaution, using special remote control equipment.

-- The use of such substances for tactical purposes, where the rapid debilitation of enemy manpower is of special importance, is considered to have little effectiveness since the effects do not act upon the fighting capacity of personnel immediately but rather after a latency period that extends several hours or days. Furthermore, for personnel situated in armored vehicles equipped with filtering equipment, the nature of the attack with radioactive substances is even less serious.

-- The contamination of terrain with long-life radioactive isotopes forces one to exclude this area from the sphere of utility for an extended period.

Even though the majority of foreign specialists are skeptical about the possibilities of radioactive substances having any military utility, several of them have noted that there is the danger of using them for purposes of ecocide[1] where the environment itself is selected as a military target. The capabilities of such criminal actions are recalled during the inhumane activities of the American military clique in Vietnam, where herbicides were used for military purposes and vegetation was destroyed with enormous 20-ton bulldozers (called Roman plows) and other technology, in an effort to destroy the habitational environment of the Vietnamese population.

Foreign specialists have also expressed the danger that radioactive substances may be used as a means of blackmail and threat by international terrorism, nurtured and supported by the most reactionary and adventuresome imperialist circles, particularly the U.S. CIA, the Israeli secret services and the neo-Nazis. Terrorist groups, given sufficient financial and technical resources, might attempt to capture nuclear munitions and fissionable materials, and to overrun a nuclear reactor or radio-chemical enterprise processing irradiant nuclear fuel. If one refuses to meet the demands of the terrorists, they can disseminate stolen radioactive by-products over a significant area after blowing up the core with a common explosive. Such contamination, although it would hardly result in a large number of deaths (in a case where the population is evacuated), it would still cause long-term economic loss. A rather serious contamination of the terrain might come about by an accident at a nuclear reactor, planned by terrorists, or by the explosion of equipment at a radio-chemical plant.

In examining issues on the creation and use of radiological weapons, one especially ought to focus on the American development of neutron weaponry, which is a thermonuclear munition with a small yield. The special destructive effect they have during the explosion is their emission of deadly neutron radiation. One can reckon that when a 203.3-mm neutron artillery projectile or neutron warhead on a LANCE missile goes off, 50 percent of the total energy expended will be neutrons, whereas the explosion of a standard-design nuclear munition, based on nuclear fission, gives off approximately ten times fewer neutrons. Furthermore, the explosion of a neutron munition is characterized by a significantly greater relative composition of high-energy neutrons. The enormous quantity of neutrons generated with this weapon and armor's low absorbtion of them (no less than 50 percent of the neutrons striking a layer 12 cm thick will pass through it) make it, in the opinion of foreign specialists, an effective means of combatting tanks. In particular, even in conditions where the armor cuts the neutron radiation in half, tank crews will be immediately debilitated (receiving a dose of 8,000 rads) at a distance of 800 m from ground zero.

The foreign press has also come out with data that shows that even with small doses of neutron radiation, there is still a danger of becoming ill from leukemia and other incurable illnesses. This does not leave out the possibility of genetic changes in those radiated, leading to noticeable physiological aberrations in future generations: an increased suseptability to diseases, giving birth to a progeny incapable of continuing the species, etc.

Both combat radioactive substances and neutron weaponry, because of the nature of their effects, are certainly related to chemical and biological weapons, the most barbaric kind of mass destruction weapons. The Soviet Union has decisively come out against and called for a ban on weapons of mass destruction. However, the ruling circles in the U.S. and the other nations of the aggressive NATO bloc, in declining these peace-loving initiatives, has

been constantly increasing the rate of developing and producing these barbaric weapons.

1. Ecocide is the annihilation of the human-inhabited environment with herbicides, the destruction of dams, other facilities, etc. - Ed.

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U.S. ARMORED DIVISION DEFENSIVE FORMATIONS DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 23-29

[Article by Col A. Egorov, candidate of military sciences, docent; "The U.S. Armored Division on the Defense"]

[Text] The U.S. political-military leadership, while increasing the number of personnel in the armed forces and arming them with nuclear missiles and modern conventional weapons, places great emphasis of developing the theoretical bases for the conduct of war. In recent years, the Pentagon has published a number of manuals and regulations which explain the views of the military hierachy on the organization and conduct of offensive and defensive operations by units and formations under modern conditions. The American commanders believe that achievement of their goals in future warfare will depend mainly on the results of offensive operations, but they accept the conduct of defensive activities as necessary and subordinate to the interests of the offense.

According to reports in the foreign press, U.S. military specialists regard defense as a type of combat activity intended for repelling or disrupting the enemy attack, holding an occupied position, economizing forces and resources, and creating favorable conditions for the transition to the offensive. It is believed that the goal of defense in general war (employment of weapons of mass destruction) must be achieved mainly by inflicting maximum casualties on the attacker with nuclear strikes and conducting rapid counterattacks, by employing conventional weapons, the strong support of positions and the destruction of the enemy by air strikes, all types of artillery fire, and highly-effective modern anti-tank weapons.

Along with the employment of precision conventional and nuclear weapons, the conduct of air-land defensive operations is envisioned. The goal of the defense in this instance is achieved, not just by the actions of the forces, but above all, by deep fires by ground forces and tactical aviation simultaneously to the full depth of the enemy's operational formation. This permits, in foreign observers' opinion, inflicting maximum losses on the enemy second echelon (reserves), delaying their forward movements and introduction into the battle, and consequently, does not permit increasing the strength of

the first echelon and creates favorable conditions for its isolation and rapid destruction.

American manuals note that the armored division is the basic tactical organization of the ground forces, possessing great striking power and combat power.[1] In the defense it is recommended that this type division should be employed, as a rule, as a component of a corps, as part of either its first or second echelon. It may operate independently in the operational depth of the enemy defense, in defense of a water barrier or an important objective. Sometimes, an armored division will be included in the army group (field army) reserve.

Depending on concrete situational developments, the armored division may conduct defenses of two types--mobile or defense of an area (positional), which are distinguished from each other by the combat formation, the manner of their execution, engineering preparation of the area, etc. Selection of one or the other type depends on the mission, assigned forces, conditions of the transition to the defense and nature of the terrain.

MOBILE DEFENSE, as described in American manuals, envisions utilization of the majority of the divisional units in the second echelon (reserve) with a mission to couterattack, at the most favorable time and from the most favorable preselected terrain, and defeat any enemy penetration into the defense and to create conditions favorable for a transistion to the offense. This is acheived in the conduct of the defense utilizing conventional means by employing tactical air strikes, artillery fires, ATGM, antitank helicopters, and other means.

In this type of defense, it is recommended that a minimum amount of force be in the first echelon whose goal it is to, at the proper time, warn the main force of the enemy approach, force the enemy to deploy formations into combat prematurely, channelize him into avenues of approach which are unfavorable to him, and then to stop the attack and block it in specific, prepared areas with the goal of his subsequent defeat by the main body of the division.

REGIONAL DEFENSE (POSITIONAL) is regarded by the U.S. Army as a type of defensive operation which has the goal of holding tactically-important pieces of terrain, inflicting significant damage on the enemy at the FEBA and preventing a rupture of the defense. In this form of defense, a major part of the divisional force is assigned to the first echelon and the main defensive position is carefully prepared in an engineering sense. The second echelon (reserve) is designated to add depth to the defense, block and destroy an enemy penetration by counterattack, as well as reinforcing the first echelon forces.

As noted in the foreign press, regardless of the type of defense, it must be, above all, active. This permits concentrating the main force, at the necessary moment, in the decisive direction, broad maneuver of units and subunits, and establishing a system of fires for all types of weapons in combination with various barrages. One of the main missions in organizing and conducting the

defense, as foreign specialists note, is to defend against tanks and other armored vehicles with all available assigned and attached means of fire.

The army commanders consider that the Armored Division is best suited for employment in the mobile defense. As a component of a corps, it will most often be assigned to the corps second echelon (reserve), as the principal striking force for conducting a counterattack or a counterblow in conjunction with the army (Field Army). In this context, the division is placed in an area 40-70 km to the rear of the FEBA, where it disperses by battalion task force. Defensive control measures are established, blocking positions, strong points, and barriers are placed on armor avenues of approach, and withdrawal routes are prepared to the boundaries of the position. A detailed counterattack plan is prepared, using several alternative approaches upon which they put one or two control measures. Defensive position boundaries of the the reserves of the first echelon divisions or strong points may serve as control measures.

A division is structured in two echelons to conduct the counterattack, in which the first will contain two brigades, including a major fraction of the tank battalions. Each brigade of the first echelon proceeds toward the assault position by two or three routes in battalion task force columns. This approach formation, in the opinion of American specialists, makes it possible to reduce the column length significantly and quickly accomplish deployment into combat formations. It is advisable to have artillery subunits forward in brigades of the first echelon or to move on the same approach route with them in order to be able quickly to occupy firing positions and support the deployment of the division main force.

In positional defense, a division in the corps second echelon basically is intended to restore lost positions, block a penetrating enemy and reinforce the first echelon formations and units.

American military specialists do not exclude the possibility of assigning an armored division to the corps first echelon. Normally, in either type of defense, it is assigned an area 30-60 km wide and 50 km or more in depth. On organizing its defense, it establishes a security zone, a main battle area, and a division rear area.

THE SECURITY ZONE, with a depth of 15-50 km, is established when there is no direct contact with the enemy. The security zone, as a rule, is designated by the corps commander and he determines the forces that will occupy it. These forces must be capable of delaying the advance of the enemy's main force toward the division main battle area for at least a day. The security zone includes the covering force position, the general and combat outposts.

The covering force usually comprises the division reconnaissance battalions and corps' separate armored cavalry regiments. These covering forces, separated by 15-50 km from the forward edge of the defense, should organize holding positions, separate strong points, and should establish various obstacles and barriers. They have the following responsibilities: deceive the enemy as to the true location of forward edge of the defense, discover the enemy's main force and the direction of the main attack, delay and disorganize his advance, inflict losses on him (personnel and equipment), etc.

The division commander locates the general outpost 8-16 km from the FEBA. It may contain up to a battalion task force. The combat outpost is established 1-3 km forward of first echelon brigades and may contain up to a company.

To successfully conduct holding activities in the security area, units and subunits of the covering force and the general outpost may be reinforced with field artillery, anti-tank systems, air defense systems, anti-tank helicopters and engineer formations. Tactical air may also support, laying down strikes on mobile forces.

The division MAIN DEFENSE AREA stretches from the FEBA to the rear boundaries of the first echelon brigades and may be 30-60 km wide and 10-25 km deep. The main division force is deployed there along with attached and supporting assets, with the mission of inflicting maximum damage on the enemy far out in front of the FEBA.

American military specialists believe that for the most successful accomplishement of the defensive mission, it is advisable to organize the brigades into battalion task forces. This composition varies, depending on the concept of the operation and the situation. It is believed that, in the mobile defense, tank battalion task forces with combat security formations in support are preferred. In positioned defense, groups of this type are created to reinforce division first echelon forces, conduct counterattacks, or block an enemy penetration.

As noted in the manuals, battalion task forces organize principal and alternate defensive positions, the basis of which is company and platoon strong points, tank and ATGM positions, anti-tank obstacles, etc. Minefields, artillery and machinegun fires are structured by the forward defense forward of the main battle area.

THE DIVISION REAR AREA has a depth of 10-25 km and is located behind the main battle area. It is organized into principal and alternate positions for the division second echelon (reserve), weapons positions, blocking positions, and approach routes for conducting counterattacks. The rear command post, division trains, first echelon brigade trains, reserve units, and certain corps units and formations are normally locates in the rear area.

As reported in the foreign press, at the present the American hierarchy is paying a lot of attention to defense of the corps and division rear areas. It believes that, under modern combat conditions, the enemy will also attempt to strike them, coordinating that with activities in the main battle area with the goal of disrupting command and control of the forces and the supply of necessary combat materials.

An armored division's combat organization establishes one or two echelons, depending on its type, role and place in the corps organization. For example, in the mobile defense, first echelon brigades are assigned a smaller portion of combat power, principally mechanized infantry battalions (the base of the battalion task forces), reinforced by combat engineers and other formations,

which the brigades of the second are principally tank battalions (Fig. 1). In positional defense, there is characteristically a single echelon structure

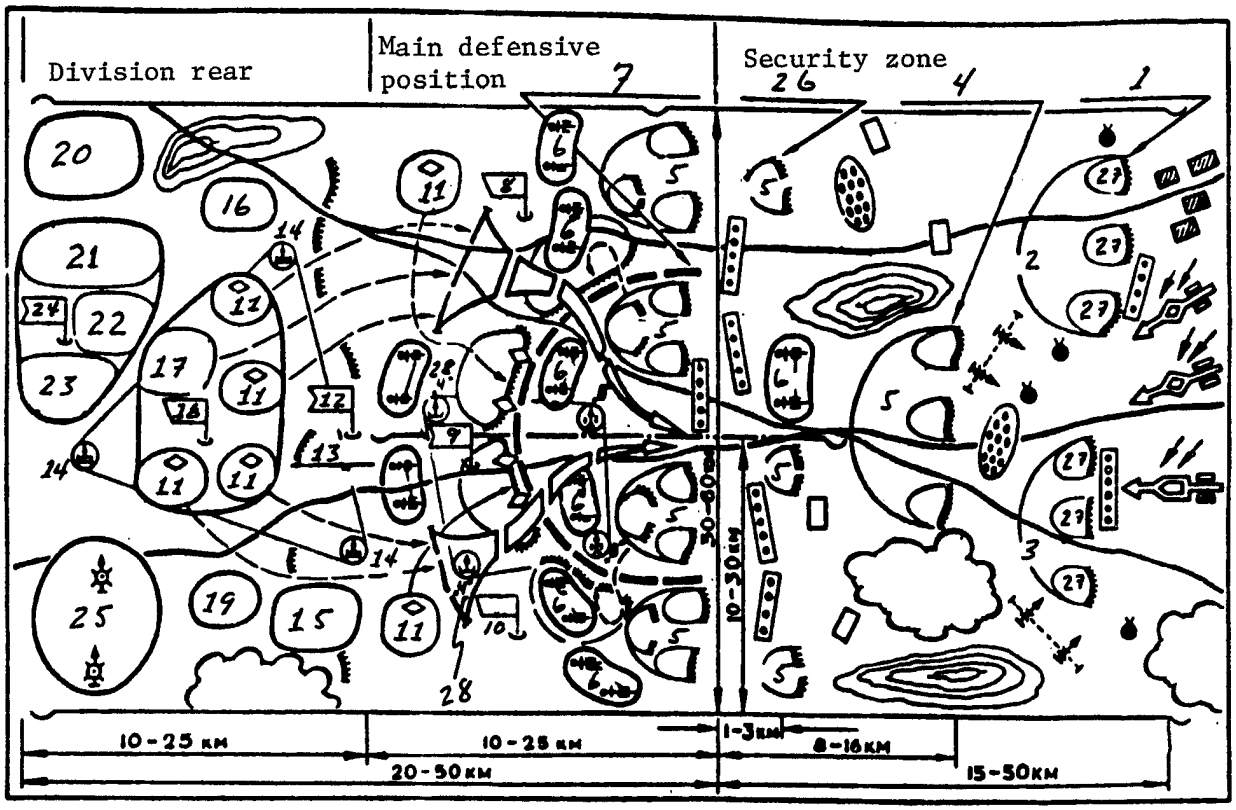

Figure 1. Combat Organization of the Armored Division in a Mobile Defense (Example)

1. Covering force position.
2. Reconnaissance battalion of corps independent armored cavalry regiment.
3. Reconnaissance battalion of the armored division.
4. General outpost.
5. Mechanized infantry battalion task force.
6. Artillery battalion.
7. Allowable penetration.
8. 2nd Brigade main command post.
9. Armored division forward command post.
10. 1st Brigade main command post.
11. Tank battalion task force.
12. Armored division main command post.
13. Armored division, 1st, 2nd 3rd brigades, artillery brigade.
14. HAWK battalion.
15. Reconnaissance battalion.
16. Engineer reserve.
17. Mechanized infantry battalion task force (after withdrawal).
18. 3rd Brigade.
19. Chemical reserve.
20. Army aviation battalion.
21. Supply and transportation battalion.
22. Maintenance battalion.
23. Medical battalion.
24. Armored division rear command post
25. LANCE battalion.
26. Combat outpost.
27. Reconnaissance company.
28. CHAPPARAL battalion.

with a designated reserve (Fig. 2), and tank battalions will be nearly equally distributed.

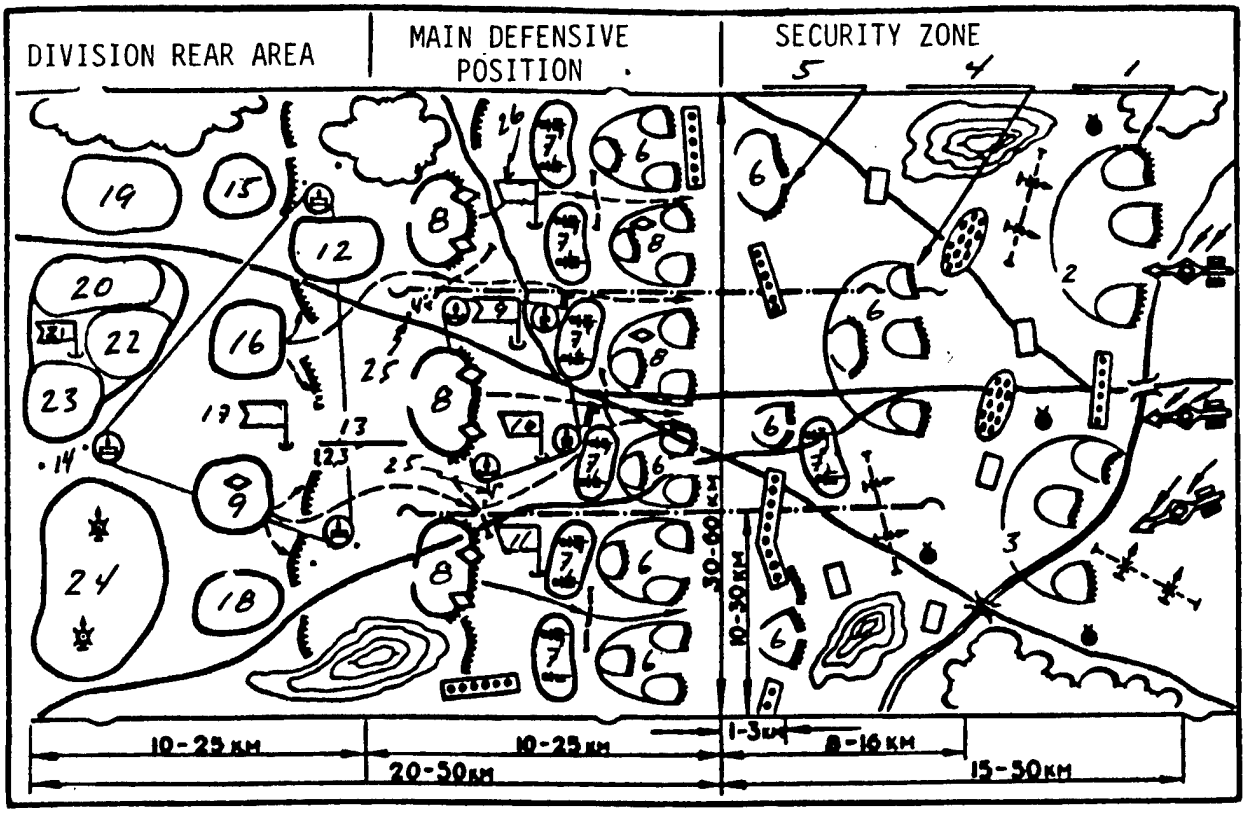

Figure 2. Combat Organization of the Armored Division in a Positional Defense (Example)

1. Covering force position.
2. Reconnaissance battalion, corps separate armored cavalry regiment.
3. Reconnaissance battalion, armored division.
4. General outpost position.
5. Combat outpost position.
6. Mechanized infantry battalion task force.
7. Artillery battalion.
8. Tank battalion task force.
9. Armored division forward command post.
10. 1st brigade main command post.
11. 3rd brigade main command post.
12. Reconnaissance battalion.
13. Armored division, 1st, 2nd, 3rd, brigades, brigade of field artillery.
14. HAWK battalion.
15. Engineer reserve.
16. Mechanized infantry battalion task force (after withdrawal).
17. Armored division main command post.
18. Chemical reserve.
19. Army aviation battalion.
20. Supply and transportation battalion.
21. Armored division rear command post.
22. Maintenance battalion.
23. Medical battalion.
24. LANCE battalion.
25. Chapparal battalion.

The width of the defensive zone depends on the mission, terrain, attached combat power and composition of the attacking enemy force. From training exercises and statements of American military specialists, it may be up to 60 km wide and 20-50 km deep. A first echelon brigade normally organizes for combat in two echelons. The width of a brigade defensive sector reaches 10-30 km, with a depth of 10-25 km. A battalion in a first echelon brigade and organized in two echelons is assigned a defensive sector 3-5 km wide and 3 km or more deep.

According to reports in the military press, special significance is attached to conducting fires in both forms of defense. A system of fires in a division is structured with consideration of mission accomplishment, terrain, and time for employing all combat power for uninterrupted fires on the attacking enemy.

The division artillery is organized such that it is possible to create a powerful barrier of fire to destroy the enemy on his approach to the FEBA, as well as bring fire to bear against enemy forces engaged in the main battle area. The divisional 155-mm self-propelled howitzers are assigned missions of providing direct support to brigades of the first echelon; organic and attached 8-inch self-propelled howitzer battalions remain subordinate to the division commander for general support and reinforcing fires for divisional units.

The corps LANCE battalion establishes firing positions in the division rear at a distance of 20-40 km from the FEBA.

Great attention must be paid to combat with tanks and other armored combat vehicles at all stages of the defensive battle from long ranges to the FEBA and in the depth of the defense. In this connection, American manuals indicate that the division defense must be primarily an anti-tank defense, combining all anti-tank-capable assets for that purpose. The basis of the anti-tank defense of an armored division, according to the views of American military specialists, is careful engineering organization and coordination of fires of the types found in the battalion task force sector with distributed anti-tank systems, tanks, and anti-tank mine fields.

In the division defensive sector, a high density of anti-tank systems is envisioned--30 or more per km of front (including tanks). It is planned to deploy, for example, 60 per cent of them with the first echelon battalion task forces, and 20 per cent with the brigade second echelon, and 20 per cent with the division reserve (mainly tanks and anti-tank helicopters). U.S. Army manuals emphasize that employment of weapons must be based on the following principles: coordinated employment, concentration on tank avenues of approach, deep echelonment and maneuver, creation of mobile anti-tank and tank reserves, bold use of terrain and wide use of obstacles and barriers. In the mobile defense it is recommended that anti-tank systems be positioned on lines and positions; in positional defense they are echeloned in depth with consideration of their mission and maxiumum effective ranges.

Reliable coverage of its units and formations from enemy air and helicopter strikesis considered the principal goal of the division air defense systems in the defense. This is achieved through deep echelonment of organic and attached forces, and their even distribution over the entire defensive sector.

As noted in the foreign press, the armored division in the defense may be reinforced by an "Improved Hawk" battalion (three 9-launcher firing batteries), whose mission is to cover the forces and objectives from enemy air strikes, principally from medium altitude. To carry out its mission, the battalion is deployed according to the division commander's decision and mainly covers the second echelon (reserve) and objectives located in the division rear area.

The organic air defense battalion "Chaparral-Vulcan" (two 12-launcher Chapparal batteries and two 12-launcher self-propelled Vulcan batteries) is designed for engagement of low-altitude enemy air targets. It is used to cover command posts, the division command centers, and other objectives. Under certain circumstances,the air defense systems may also be attached to the first echelon brigades (one battery of surface-to-air missiles and one or two self-propelled batteries).

U.S. Army manuals note that defensive combat with the enemy is initiated by forces located in the security zone. Conducting delaying operations on fallback positions, they attempt to discover the enemy formation, inflict maximum losses on him, and disorganize and slow his advance. It is emphasized that destruction of the enemy must be accomplished through deep strike, which is coordinated under a single plan to crush the advancing enemy forces, especially the second echelons (reserves), by all organic, attached and supporting combat forces of the units and formations of the ground forces and tactical aviation. Units and formations of the covering forces, the general and combat outpost, having fulfilled their missions, are withdrawn from the battle and occupy designated positions in the division formation.

As the attacking force nears the main defensive position, units of the first echelon increase the intensity of fires to slow their movement or prevent an organized advance. It is believed that the battle to hold the main defensive position is the most intensive and crucial period of combat action for the division.

As emphasized in the foreign press, success in combat depends on the methods of conducting the defense, which must correspond to the mission, the enemy attack formation, terrain, the condition of the defensive units and formations and the time available to them for mission accomplishment.

IN THE MOBILE DEFENSE, after determining the direction of the enemy main attack, measures are taken to crush the advancing formations by all available means under the division's control. Aviation and fire-support helicopters may also deliver strikes in support of this. Upon attack of the FEBA, the formations of the first echelon brigades have the mission, while holding occupied strong points and sectors, to increase the intensity of fire by all types of weapons, so as to inflict the maximum possible losses on the enemy, slow his advance, and if unsuccessful in doing this, then to channelize the

enemy onto desired routes leading to earlier prepared areas for subsequent destruction by fire and counterattack. In American military specialists' opinion, the actions of units and formations must not reveal the division commander's concept and must siumltaneously prevent the advance of enemy forces to a depth further than that prescribed.

As the foreign press emphasizes, after the enemy is stopped and his utter defeat accomplished, the nature of further combat actions by the division will depend on the situation which has developed. In particular, there may occur a reorganization of combat forces for the transition from defense to the offense or establishment of a new defensive formation.

IN POSITIONAL DEFENSE, when formations of the brigades' first echelons cannot repel the enemy attack and he is able to penetrate the defense, then the main effort is placed on limiting further penetration. If a threat of a rupture of the first echelon battalions' defense area arises, counterattacks by the brigade second echelon are organized and conducted with the goal of restoring the FEBA.

American manuals note that the decision to conduct a counterattack should be made on the basis of the actual situation. It is believed that a counterattack with forces of the brigade second echelons, when the enemy attack has an advantage in strength, is not advisable, with the exception of those cases when it is necessary to recover or capture an important position, on whose retention the integrity of the brigade's defense depends. More advantageous times for counterattack are the following: the enemy attack slows or stops, or the enemy cannot yet secure a captured objective. If a counterattack by the brigade second echelons does not lead to a restoration of the lost situation, then the retreating formations of the brigade first and second echelons withdraw to blocking positions and hold them with the goal of stopping further penetration by the enemy and creating conditions for a counterattack by the division second echelon.

If the enemy penetration reaches the operation depth of first echelon battalion task forces and there is a threat of a rupture of the main defensive sector, the division's second echelon (reserve) counterattack to restore the lost position. It should be conducted jointly with the first echelon brigade in whose sector the counterattack is conducted, into the flank of the enemy penetration with decisive goals.

Foreign military specialists suggest that when a large enemy force penetrates to the full depth of the main defensive position, and when the armored division does not have the capability to restore the lost position, it may be given the mission of preventing further enemy penetration together with reinforcing the corps second echelon formations. After fulfilling its mission, the division, depending on the situation, may continue to defend or, by the corps commander's decision, revert to reserve.

These are the U.S. Army hierarchy's general views on the organization and conduct of defense by an armored division.

1. For the organization of the armor division see: ZARUBEZHNOYE VOYENNOYE OBOZRENIYE No 1, 1984, p. 45 - Ed.)

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DISCUSSION OF ROLE OF ATTACK AIRCRAFT CONTINUES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 41-47

[Article (conclusion) by Col V. Kirillov, candidate of military sciences; "Attack Aircraft in Battle" passages rendered in all capital letters printed in boldface in source]

[Text] The first part of the article[1] took up questions related to views on two factors which determine the effectiveness of the combat use of attack aircraft in providing direct air support to ground troops on the battle field, namely "reaction" and "survivability." Based on foreign press material, we will examine below two other basic factors: "target acquisition" and "weapons."

The "target acquisition" factor, as the Western military press notes, comes into play only after an attack aircraft responds to a call in a timely manner and successfully avoids the enemy's organic anti-aircraft defenses. Now he has to seek out his target, determine its identity, and track it to the end of the attack. Thus, the term "target acquisition" combines searching, detection, identification and tracking. The effectiveness of an attack aircraft's flight depends upon the successful execution of these tasks.

The difficulty of searching for a target, as mentioned earlier, is characterized by two factors besides weather conditions and camouflage--increased speed and lower altitude sharply decrease the probability of an an aircraft's destruction by anti-aircraft fire. In this case, however, the target search is significantly complicated. Thus, the foreign press reported that, if during a flight at 300 m, the pilot should accelerate from 550 to 750 km/hr, the probability of being hit by anti-aircraft fire is almost cut in half. Further increase in speed leads to an increase in the calculated value of the safe flight altitude, which leads to a higher probability of shooting down the attack aircraft. The Western press illustrates the effect of lower altitudes with the following example: in a flight over a flat area, a decrease in altitude from 150 m to 60 m decreases the range for visual detection of a target by one third.

American specialists believe that to the extent that the probability of survival increases at higher speeds and lower altitudes, the probability of detecting a small ground target likewise decreases. In addition, they intensify the physical and psychological load on the pilot (simultaneously with piloting the aircraft over changing terrain, he must navigate, visually monitor the altitude, survey the surrounding air space, search for the target, etc.).

Based on experience, the Western specialists have established that, during a flight at less than 150 m altitude at a speed M = 0.8 +/- 0.1, the time between detecting a target and making a pass at it does not exceed 20 seconds, even with good visibility. In that time, one must make adjustments in one's course, establish a given regime and profile for attack and prepare to use weapons. If the pilot does not manage to get this all in in such a tight time frame, he is forced to make a repeat pass. In this case, the surprise factor is lost and the total time spent in the anti-aircraft fire zone increased.

The number and complexity of the elements which make up the target search and detection phase created a load that one could not handle. Even with good training, involving low altitude training flights, one still needs help (in guidance and target designation). In the U.S. and the other NATO countries, efforts to solve this problem were directed into two areas: the organization of forward observation posts and an improvement of onboard search equipment.

The forward control post initially was a small mobile radio station mounted in an automobile, in which there was an air force representative at the disposal of a brigade or division of ground troops. Assigned to him was a division communications officer who informed the former on the situation on the ground and located targets for air attack. The attack aircraft were alerted through the ground network, reached the area of the advance post, were guided (by radio) towards the leading edge of the troops (FEBA) and received their target designation with the aid of pyrotechnic signals. It was noted that this organization was in place in the beginning of the Second World War.

After the very first practical tests of this primitive means of guidance, it became clear to the U.S. Air Force Command that the combat support system for attack aircraft at the FEBA required rapid improvement. The foreign press reports that the U.S. gradually developed an integral guidance system consisting of direct air support centers at the corps level, tactical air control commands at the division (brigade) level, and forward control posts at the brigade (battalion) level. As before, an air controller worked directly with the pilot who had reached the FEBA, and the responsibility for "target acquisition" was divided between them. However, an air controller on the ground could view targets on the battlefield only if near the FEBA, but the far boundary for direct support extended for a distance of 100 km. Therefore, apart from attack aircraft, airborne control posts on light piston aircraft were included in the the structure of the air support forces. Besides the guidance function, they carried out reconnaissance of ground targets while maintaining direct radio contact with the ground forward control posts.

A dynamic flow chart of the support provided under such an organization included the following stages: search for and detection of a target by air reconnaissance; a complete report on the target to the forward control post; transmission of reconnaissance (request) data to the direct air support center; confirmation of the request, a call for attack aircraft with information on the arrangement of forces and objective of the strike; arrival of the attack aircraft in the area of the forward ground post; marking the target with pyrotechnic devices (usually smoke pots) placed by a scout, guiding the attack aircraft to the target marked by the scout (by radio and with the aid of light trails formed after the firing of signal missiles).

According to foreign reports, the support system developed in the U.S. underwent prolonged testing in South Vietnam. The whole country was divided by the American Command into 214 visual reconnaissance areas, to each of which were attached ground and air control posts. The latter role was performed by the light piston-engine O-1 aircraft equipped with a collection of marker devices. A second crew member, not involved in flying assisted the pilot. The American magazine "Air Force" wrote: " The O-1 aircraft with their forward controllers were the basic element assuring the success of attack aircraft operations. It was difficult for a crew called up for air support to determine the location of the target and make a pass at it without the invaluable smoke signal placed by the O-1, especially with an unstable front line and effective concealment of one's objectives from the enemy. The effectiveness of attack aircraft operations would decrease without these measures."

In discussing the results of the combat use of airborne control posts during direct air support, American and Western European specialists are divided in their opinions. The latter believe that the organization of airborne target detection for attack aircraft on the battlefield is possible only where there are weak enemy anti-aircraft defenses, making it unadvisable in a European context. In view of these reasons, there are no such subunits in the air forces, although they are included in the European zone of the USAF Command. These subunits contain O-2 aircraft equipped with improved launchers for marker missiles and reference signal bombs. When necessary, the aircraft could carry two suspended machine guns, the minigun and non-guided aircraft missiles. In addition, OV-10 Broncos could be utilized. American experts base this on the fact that the OV-10 possesses the following advantages over the O-1: an armored cockpit, the presence of two turboprop engines, greater air speed, and a greater combat payload (the O-1 pilots constantly complained about the limited number of marking devices on board the aircraft).

Judging by foreign press announcements, the main problem of "target acquision"--increasing the distance of detection and identification--was defined with sufficient clarity based on the results of attack aircraft in direct air support. In particular, during a visual search, when the aircraft is flying at 550 km/hr (the cruising speed of an A-20 with a full combat payload), in order to successfully attack a target using aerial bombs, it must be detected at a distance of no less than 800 m, and at a speed of 740 km/hr. (the cruising speed of an Alpha Jet), no less than 1,000 m. If an ascending maneuver is required, then the threshhold for beginning an attack frequently is moved back beyond the limits of possible visual detection of a target. In

the European context, when the use of airborne posts for control and target designation is questioned, Western specialists believe the sole alternative to the situation which has been created is the creation of special technical means.

According to the magazine "Aerospace International", A PAVE PENNY suspended laser target detection system was tested on an A-10 attack aircraft in 1977. The following year it began to be installed on the primary wing of this type of aircraft. Extreme qualitative changes were made in the search equipment: the pilot no longer seeks the target, but a laser beam reflected off it. Illumination of the target can be produced with the aid of ground or airborne air spotters, as well as from the attack aircraft itself if equipped with the appropriate apparatus.

The initial capture of the reflected laser emission is accomplished by an onboard scanning device, which "glances over" the terrain ahead while the attack aircraft approaches the area of combat actions. After a laser "spot" is detected, its bearing is displayed on an indicator in the cockpit. The pilot turns the aircraft toward the target and continues flying in that direction. In this way, the search stage is replaced by the approach stage.

Based on the results of tests, a more reliable method was chosen based upon the interaction of the attack aircraft, the carrier of the means of destruction, with an external source of illumination. As the Western press attests, target detection by this method occurs far beyond the range of visual sighting--at distances up to 24 km.

In the opinion of Western experts, under actual combat conditions, target illumination, aided by a unit's organic land equipment, has obvious range limitations, the method of dispatching spotters beyond the front line is not realistic. Therefore, again, the tactical link is manifest: the attack aircraft with a PAVE PENNY (designed only for reception of the reflected wave) and the airborne navigation post (with a laser target indication system), for which the use of MOHAWK light reconnaissance aircraft and pilotless guided drones is proposed. As for the latter, the foreign press reported that in the armed conflict in Lebanon in 1982, the Israeli aggressors made frequent use of the small, light SCOUT and MASTIF drones for battlefield reconnaissance and guiding attack aircraft to detected targets.

Television and infrared systems are being used at the present time in order to increase the range of detection and identification of ground targets.

In the estimate of foreign specialists, the large-scale use of all the above-mentioned systems will allow for a significant increase in the range and reliability of detection of given targets. In addition, the data received by the device provide an opportunity for sighting both manually (visually) and using instruments. Along with this it is believed that detection using instruments applies only to illuminated and contrasted targets (tanks, armored targets, anti-aircraft launchers in a limited area). But this does not exhaust the list of targets designated for destruction by strikes in direct air support. In 85 per cent of the instances in which the enemy uses the

appropriate camouflage, proven visual search, detection and identification methods are also required.

THE "WEAPONS" FACTOR. The NATO air forces evaluate an attack aircraft's flight by the extent of damage inflicted on a given target. In principle, its mission is simple to formulate: be above the target at the indicated time and destroy it. However, as the Western specialists emphasize, execution is a complicated matter. In their opinion, the experience of local wars has shown that an aircraft providing direct air support to troops must not only carry as large a combat load as possible, it is no less important that its capability to have on board weapons of various types, performance principles, and destructive factors, and such a crew that that the pilot may choose the necessary ammunition in respect to the character of the target.

The Western press reported that the American and Israeli aggressors made wide use, in local wars, of ball bearing and plastic bombs against personnel and frequently against an unarmed, peaceful population.

The first of these resembles a pineapple, in the shell of which are fitted 250 metal ball bearings, 5-6 mm in diameter. One attack aircraft carried approximately 1,000 such bombs (in cylindrical clusters), that is, approximately 250,000 ball bearings, which were dispersed in an area roughly the size of four soccer fields. The improved guave ball bearing bomb is the equivalent of a tennis ball in size (300 ball bearings in each). After expulsion at altitude of 400-500 m, the cluster with 640 guave bombs inside opened up and the bombs dispersed in all directions and exploded. The bearings struck people located in open areas and in shelters without overhead protection. They penetrated deeply into the body and were difficult to remove.

The plastic bombs consist of a pressed plastic body which burst into hundreds of pieces from 1.5-3 mm in size. Fragments which have entered the body cannot be detected by X-rays, which significantly hinders the wounded's recovery. One version of this bomb is loaded with 500 fine darts, each 28 mm long.

Anti-personnel mines are divided into two types: for destruction and holding operations. When fully loaded, one aircraft scattered up to 1,500 mines with a very great dispersion in density. After falling to the ground, the holding operation mine releases eight rigid wire filaments 7.5 m long. Contact with any of them caused the mine to explode and its wire fragments or bearings to be scattered for up to 60 m. In addition to the mines, acoustic sensors were dropped to indicate enemy attempts to negotiate the minefield. When the sensor signalled a mine explosion, an additional detail of attack aircraft was dispatched with ammunition to destroy both personnel and equipment.

The above-mentioned ammunition was most often deployed in clusters. Clusters were dropped from an altitude of 400-600 m. They usually inflicted strikes on anti-aircraft batteries and missile sites with an eye towards knocking out their support personnel as well as the sensing elements of direction finding radar and other electronic devices.

In analyzing the experience of past local wars, as tested on the proving grounds, the magazine "Inter Avia" wrote that the weapons of the mass-produced attack aircraft must be inexpensive and easy to use. In particular, during actions against personnel, transport, artillery positions and other enemy objectives at the front line, the most appropriate weapons are considered to be the unguided air missiles, fragmentation and high explosive bombs of all sizes, containers with mines, and cluster ammunition.

Concerning the question of precision guided weapons, the Western press noted that they are optimal for executing one specifically defined mission and do not possess great flexibility in their use. Besides this, they are expensive and expectations of their widespread use are still premature.

Guided air bombs and missiles with regard to their features, the characteristics of their guidance systems and means of attack, are more appropriate for executing missions to isolate zones of combat actions. The exceptions include certain models specially designed to destroy armored targets on the battlefield, for example, the MAVERICK guided missile.

In the opinion of foreign military specialists, the experience of local wars unequivocally established the merits of build-in aircraft cannon as opposed to those in suspended containers. They believe that installation inside the fuselage, although it increases the weight of the airframe, thus decreasing drag, increases firing accuracy and frees the external assemblies for hanging another weapon. With this in mind, they came to the conclusion that the use of cannon of less than 30 mm against tanks is ineffective. Thus, in the opinion of Western experts, the large caliber fixed aircraft cannon is the primary necessary element of a modern attack aircraft's weapon system, one of whose basic missions is to destroty small mobile armored targets on the battlefield.

Building on all of this, the A-10 attack aircraft was developed. In the opinion of American specialists, its normal combat load in a Western European context must include four AGM-65B MAVERICK guided missiles or four aerial bombs (clusters), a complete ammunition allowance for the GAU-8/A cannon (approximately 1,200 shells), a container with a PAVE PENNY unit, a container with an anti-jamming unit and a full fuel reserve in the internal tanks. Such an arrangement provides the optimal combination of speed, maneuverability, firepower, acceptable reaction time, and sufficient air time over the battlefield.

As proving ground tests have shown, a 30-mm armor-piercing incendiary shell, with a uranium alloy core, shot from a GAU-8/A cannon can penetrate the turret of a modern tank, destroy an engine's armor cover, and damage the undercarriage. Armor has been pierced after an attack from a distance of 1,600 m. Firing at a 6 x 6 m dummy, the pilots achieved a 25 per cent kill rate in their first flight, and later their accuracy increased to 75 per cent. This brought out the fact that, from the point of view of saving ammunition and acceptable accuracy, a 1-2 second pass is the most rational. This firing range permits a turn away from the target and therefore prevents the aircraft's passing over it after the attack has ended.

The MAVERICK guided missile with its television guidance system was usually used from a distance of more than 3 km. When attacking a contrasted target in good weather conditions, rockets may be launched from a distance of 19 km.

The American press widely boasts about the high accuracy of this missile. The magazine "Aviation Week and Space Technology" reported that, during evaluation tests of production models of the MAVERICK at proving grounds, 92 per cent of the 178 launches registered a direct hit, and in the Arab-Israeli War of 1973, 40 of the 50 missiles of this type fired by the Israelis from a Skyhawk attack aircraft hit the target.

However, many Western military experts believe the chief advantage of air-to-ground weapons is not so much their great accuracy as the ability to deliver aimed strikes (of course, with the maximum possible accuracy) on given targets, while not entering into anti-aircraft range or keeping the time with range to a minimum. From this principle, one should develop a tactic for aircraft providing direct air support for ground troops, e.g., attack aircraft should use guided weapons and turn away from a target without coming into anti-aircraft range.

In particular, just such a technique, according to the West German magazine "Flug Revue," should be the basis of the tactics of Alpha Jet light attack aircraft. " A strike against tanks, launched by a combat aircraft from a safe distance due to the use of guided weapons--this is what a battle should be when combatting an enemy tank," Figure 4 shows a diagram of such a battle. An alpha Jet takes off from an airfield near the FEBA and flies at an extremely low altitude to the area where the forward air spotter is located while trying to avoid detection by enemy radar. Then, at the command of the forward air spotter, the attack aircraft gains altitude along a line determined by signal devices on the ground, detects the target (visually or with IR or other technical means) and attacks the enemy tank with MAVERICK guided missiles. As the aircaft can carry up to four guided missiles, after the first launch it executes three more passes, and upon descending, departs for home base.

The magazine considers the chief feature of this technique to be an attack from territory occupied by one's own troops, that is, when the attack aircraft are under the cover of their own anti-aircraft defenses. As for cost effectiveness, the same magazine has written that one modern tank costs approximately one million West German marks, so, if even 50 per cent of the guided missiles launched by the Alpha Jets reach their targets, the expenditures to purchase these aircraft would be justified.

In general, light attack aircraft are seen by West German specialists not as "a forced solution" due to lack of more effective weapon systems, but as a tactical necessity in the context of the Central European TVD.

In the event that attack aircraft are forced to enter the enemy's anti-aircraft zone, the air must be cleared of its fighters. Organic anti-aircraft defenses are to be overcome by flying at medium and high altitudes, specifically those beyond the range of anti-aircraft artillery and low altitude missiles.

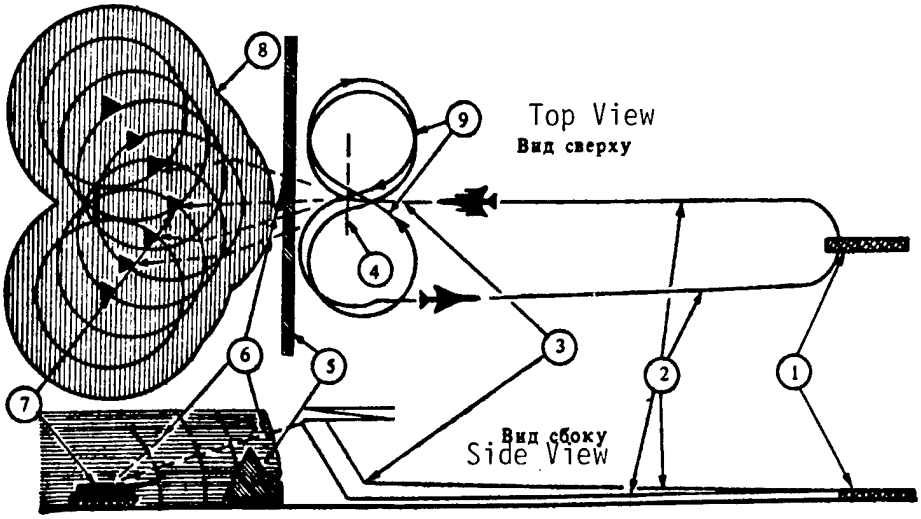

Рис. 4. Схема нанесения удара управляемыми ракетами с легкого штурмовика «Альфа Джет» по бронированным целям: 1 — полевой аэродром; 2 — маршрут полета к цели и обратно (на малых высотах); 3 — рубеж начала набора высоты; 4 — рубеж атаки; 5 — передний край боевых порядков своих войск; 6 — траектории полета ракет; 7 — цель; 8 — зона огня ПВО боевых порядков противника; 9 — последующие заходы на цель

Figure 4. Schematic for Delivering Strikes with Guided Missiles from the Alpha Jet Light Attack Aircraft

1. Airfield.
2. Flight route to and from the target (at minimum altitude).
3. Line for gaining altitude.
4. Line of attack.
5. FEBA.
6. Missile trajectory.
7. Target.
8. Enemy air defense zone.
9. Subsequent approaches to the target.

The Western press has produced a unique generalized model of an attack aircraft's combat sortie, consisting of several stages. The first stage is called "detection." It places certain requirements on the aircraft which meet the following conditions: secrecy of penetration, reduction of effective reflective area; reduction of the levels of infrared emissions, noise and engine fumes; improved stability during flight at low altitudes in turbulent air currents. The pilot, in turn, must avoid intrusion into the zone of visual, instrument, or radar detection by the enemy or should enter it as late as possible.

The second stage is "evasion." The aircraft evades destructive anti-aircraft fire with sufficiently high speed and maneuverability, and the pilot does so with his ability to execute counter-air defense, anti-missile and anti-fighter maneuvers.

The third is "suppression" (offensive actions) in which evasion is not very effective, and the only means of protection is an attack. In the opinion of foreign experts, such a situation is often encountered in tactics, especially when it is necessary to break through directly to a target when an alternative is not possible. There, the aircraft must have sufficiently effective weapons to combat anti-aircraft defenses, and the pilot must have mastered completely special offensive techniques.

The fourth stage is "the search." In this stage, we are forced to use rigid flight regions related to the detection and identification of a target as well as to tracking it. There, a lot depends on the refinements of the aircraft's equipment, allowing long searches, rapid and successful target interception, and minimal sighting time. The pilot must be taught the methods of visual search, the techniques of target discrimination by external markings, and quick combat maneuver as well as the use of technical means of detecting strike objectives.

The fifth, "defense-vulnerability," applies to the portion of the aircraft's approach above a defended target, which is unavoidable when conventional means of destruction are used--free-falling bombs, rifle-launched weapons, clusters and unguided air missiles. Invulnerability is achieved by armor, redundancy of primary systems, and use of fire-extinguishing equipment. The pilot cannot take any kind of measures as a practical matter or his aircraft becomes a target. This is attested to by the fact that, precisely in this portion of the flight, the attack aircraft encountered the greatest losses in local wars. Western military specialists believe that such a situation can be changed after eliminating a pass over the target from the attack aircraft's flight plan, that is, by using guided means of destruction allowing the attack to end before the aircraft enters the anti-aircraft defense zone of the objective.

1. For the beginning of the article, see: "Zarubezhnoye voennoye obozreniye," 1985, No. 2, pp. 49-56.

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FOREIGN MILITARY AFFAIRS

BRITISH CLUSTER MUNITIONS DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 50-52

[Article by Col V. Dmitriev; "British Aviation Cluster Munition"]

[Text] The military and political leadership of Great Britain, in accelerating its increase in the strength of its armed forces, has paid special attention to equipping them with modern kinds of weaponry and military technology. Thus, the JP233 aviation non-dropped cluster munition, loaded with small caliber concrete-piercing bombs and anti-vehicular mines, has been developed for the air forces. It is intended to knock out airfields, roads, concrete shelters and other area targets and is employed by tactical aircraft. Based on an evaluation by British specialists, this cluster munition is a very effective means of combatting enemy aviation on the ground by destroying take-off and landing strips and airfield taxiways.

The munition, in essence, consists of two separate containers; the head dispenser, containing 215 HB876 mines, and the tail dispenser, holding 30 SG357 bombs. The head dispenser is made of light alloys (2,470 mm in length, 840 mm wide, 560 mm high, weight when loaded is 1,085 kg). It contains 90 tubular guide vanes in 18 layers running perpendicular to the length of the container and orientated 15 and 35 degrees from the vertical. This assures getting a fan-like dispersion of the mines out of the container once airborne and a mine field whose area covers the dimensions of a take-off and landing strip.

Depending upon the place where the container is deployed, the guide vanes have varying lengths, allowing one to load them with one, two, or three mines. They are fired by ignition cylinders (squibs) which form a compressed gas when ignited, so that in guide vanes with two or three mines, the one closest to the ignition cylinder functions as a piston ejecting the others. Furthermore, the mines penetrate the lower housing of the containers which are made of a special steel that does not damage the ejected mines and does not form any fragments which can be harmful to the delivery vehicle. The order of firing is determined by an electronic interval meter located inside the container that works out the proper sequence of release impulses for the ignition cylinders fed by an igniter.

The interval meter contains two microprocessors (one is reserve) that work according to a program inserted into its memory. The program also considers such factors as the type of delivery vehicle, the kind of munitions being dispersed, the angle of inclination of the hanger with the cassette, the velocity of the munition's trajectory while the cassette is dispersing, and the direction of the trajectory relative to the target. The interval meter of the head dispenser is connected to an analogous device for the tail dispenser as well as the on-board equipment of the delivery vehicle. This assures a coordinated dispersion of the munitions. The functional program of the microprocessors contains several so-called diagnostic subprograms which assist in quickly verifying the combat-readiness of the dispenser after it has been plugged into the on-board electronics equipment.

The tail dispenser is made of a light alloy (4,025 mm long, 1,140 mm wide, 600 mm high, and weighs 1,250 kg when loaded) and contains concrete-piercing bombs located in 22 compartments tilted back at a 30^0 angle. They are fired out with the assistance of individual ignition cylinders in an order determined by an electronic interval meter. The compressed gas formed by the ignition cylinder going off initially causes the release of two locking devices which hold the bomb onto the rail guide and then forces the bomb through the tubular guide. Once activated, the bomb pierces the aluminum base of the container, which is covered with a layer of resin that prevents the munition from getting damaged and from forming fragments. When both dispensers are assembled together, one has a cluster bomb that is 6,550 mm long, including the gap (of 65 mm) between them, and weighs 2,355 kg.

Given the purpose of the cluster munition, the basic munition is the concrete penetration bomb. It contains a shaped charge in the head that helps to first make a hole in the take-off and landing strip. Next, the hole gets filled in with the base HE (high explosive) charge (with a weight of about 2 kg). It causes the primary damage to the surface of the strip by forming a crator 1.5 to 2 meters in diameter. After the bomb is delivered, four small stabilizers emerge from the bomb and a braking parachute is pulled out that assures the projectile will land vertically even where there are strong cross winds. After landing on the surface of the airstrip, a percussion fuse activates causing the shaped charge to explode. The total weight of a bomb is 25 kg.

The anti-vehicular mine consists of three modules. The center module contains a feeder battery, a safety and operating mechanism, and an electronic hook-up for the ignition device. The lower portion houses the orientation module with a spring-loaded braking element that assures the mine is stabilized right after it is ejected from the dispenser, a braking parachute which assures the proper landing velocity, and a vertical orientation mechanism. When the mine lands on the ground, the orientation mechanism sets off 12 spring-loaded catches that stick out around the body of the mine. The third module constitutes the main warhead, which sits atop the mine when it is in a vertical position. The end concave cavity of the warhead assures the formation of an impact center during explosion. When a bulldozer blade rides over a mine, for example (tipping the mine on its side), the mine pierces the blade and the engine situated behind it. Furthermore, around the warhead there are five rows of smaller hemispherical cavities, which, also form impact

centers along horizontal surfaces during explosion, destroying personnel, aircraft rudders, and repair and reconstruction equipment.

The fusing device contains two elements which respond to fixed kinds of mine responses; the operational activation timer, and a self-destruct mechanism which blows the mine up after a certain delay period. The flexible nature of the setting for activating the self-destruct mechanism allows one to maintain the combat effectiveness of the minefields blanketed with a cluster bomb for several hours.

As for the basic carrier aircraft for the JP233 cluster munition, judging from reports in the foreign press, it is intended that the "Tornado GR-1" fighter bomber will be used, making it possible to carry two bombs under the fuselage suspension. The munitions are delivered at velocities of up to 950 km/hr at elevations of about 60 m (the minimum timing is determined by the time it takes to activate the fuses). It is the duty of the pilot to bring the plane to the target, take aim (using an electronic optical display with the data displayed on the windshield [heads-up display] and to push the button to plug in the interval meters of the cluster weapons, after which the bombs and mines shoot out and the empty dispensers are automatically released. Furthermore, the pilot selects how long it will take to spend all of the munitions, depending upon the approach made on the target -- either along or across the airstrip.

In order to hang the cluster bomb on the "Tornado" plane, a special cart with a lift load of 1,500 kg has been developed. A single person directs this process from a remote console. The Western press notes that company specialists and developers of cluster bombs have examined the possibility of using distinct specialized variants of the dispensers to fit under the wings of the "Jaguar," F-16 and F-111. The weight of a container with 30 concrete-piercing bombs is 1,370 kg and with 215 anti-vehicular mines -- 1,150 kg. Similarly, the Western press has expressed the opinion that JP233 cluster bombs might be used to arm the air forces of other NATO countries.

Cluster munitions are expected to be put into air units in 1985-1986, which, in the opinion of British military experts, will permit the enhancement of the combat capabilities of tactical aircraft and will solve problems in securing air superiority and isolating regions of combat activity.

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FOREIGN MILITARY AFFAIRS

NATO'S USE OF MERCHANT FLEETS DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 57-61

[Article by Capt 2nd Rank Yu. Falkin; "The Maritime Fleet in NATO's Plans"]

[Text] Under present-day conditions, which are characterized by an uniterrupted increasing role of the trade and economic ties between the world's countries, an ever-increasing role is being played by sea and ocean transport, whose share in the system of international freight turnover today has reached 75-80 percent. The maritime fleet is the most economical type of transport. This stems from the ships' significant carrying capacity, the relatively small capital investment in equipment for the sea routes, and the comparatively small expenditure of power during the delivery of freight. For these reasons, the cost price of sea transport is 40-50 percent less than by rail and more than 20 times cheaper than by automotive means.

According to Lloyd's Register, as of 1 July 1983, the number of ships in the world's fleet (of 100 gross tons or more) numbered approximately 76,100 units, and their total gross tonnage was 422 million registered tons[1] and the deadweight tonnage (DWT) was 694.5 million tons[2].

Nearly 3,000 merchant ships (see table), with a total DWT of 245 million tons, sail under NATO countries' flags.

However, the data presented in the table do not reflect fully the numerical characteristics of the NATO states' maritime fleets. One must keep in mind that many capitalist countries, including those given in the table, register their ships under Liberian, Panamanian, and several other "flags of convenience." Thus, according to the foreign press, more than 7,000 ships, not owned by Liberia, with a DWT of more than 67.5 million registered tons, sail under the Liberian flag. Therefore, although only 6,437 ships (29.3 million deadweight tons) are registered under the U.S. flag, the actual total DWT of the American merchant fleet is more than 90 million tons.

NATO COUNTRIES' MARITIME FLEET ACCORDING TO LLOYD'S REGISTER
(as of 1 July 1983)

World Ranking	Country of Registry	Number of Ships	Gross Tonnage, 1,000 Registered Tons	Deadweight Tons (1,000)
3	Greece	3,169	37,478	65,986
6	USA	6,437	19,358	29,295
7	Norway	2,340	19,230	33,524
8	UK	2,570	19,121	29,878
10	Italy	1,609	10,015	16,475
11	France	1,173	9,868	16,820
12	Spain	2,589	7,505	12,788
14	FRG	1,769	6,897	10,797
19	Denmark	1,112	5,115	7,926
20	Netherlands	1,287	4,940	7,480
25	Canada	1,300	3,385	4,165
29	Turkey	687	2,524	4,088
33	Belgium	322	2,274	3,691
42	Portugal	357	1,358	2,161
	TOTAL	26,721	149,068	245,074

Note. Data given in the table concerns ships of more than 100 registered tons.

Also, nearly 1,000 Greek ships (DWT 30.8 million tons) are maintained under "flags of convenience." For this reason, during the past three years, the British maritime fleet was reduced by a third, the gross tonnage of the Norwegian fleet was decreased by 2.8 million registered tons, the Italian by 1.0 million, the French by 2.0 million, and the West German fleet by 1.5 million registered tons.

The NATO countries' maritime fleets are qualitatively dissimilar. Denmark (77 percent of its ships are less than 10 years old), France (73 percent), FRG (69 percent), Norway (68 percent), have the most modern ships.

The maritime fleet is practically the only type of transport capable of implementing the massive transport of freight between continents. Despite the foregoing, the military-political leadership of the U.S. and NATO, as noted in the foreign press, regards the maritime fleet as an important reserve for the navy in case of war, bluntly calling it "the fourth branch" of the armed forces. The participation of the maritime fleet in the Second World War, the aggressive wars in Korea and in Vietnam, and in the Falklands' events in 1982, can serve to confirm this.

As the foreign military specialists report, the maritime fleet will be enlisted, in the threatening period or with the commencement of hostilities, for the massive shipping of troops and combat equipment to the TVD, and the fleet's material-technical and rear services (supplying ships with oil, ammunition, provisions, performing ship repairs, repair of weapons and equipment, the reorganization of personnel R&R, medical services, etc.).

The supply of several types of strategic materials and finished products from the U.S. to Europe, in order to support, at the necessary level, the military-economic potential of the NATO countries, has a special significance. It is reported that for supplying this aggressive bloc's large formations of armed forces in the initial period of combat operations in the European theater of war, it will be necessary to deliver about 10 million tons of weapons, military equipment, articles of supply and POL from the U.S. Thus, just for moving one U.S. mechanized division requires the transport of more than 100 tons of weapons, combat equipment, and various goods. Besides that, such a division, during combat operations, daily needs 1,000 tons of ammunition and other articles of POL. Even now, lists of merchant ships have been made in NATO which are liable for requisitioning from the owners in case an emergency situation arises.

As reported in the foreign press, in the threatening period, bloc countries' merchant ships of more than 200 gross tons, a speed of over 20 kts and a service life of up to 20 years will be transferred to NATO. One of the basic requirements is the capability of quickly being refitted as a auxiliary vessel. It is emphasized also that the bloc's combined maritime fleet can include about 10,000 ships with a total gross tonnage of 230 million registered tons. Its full mobilization, according to existing norms, can be accomplished in six months.

At the present time, in the NATO countries, as in the shipping world in general, more and more attention is being paid to the construction of specialized ships (container ships, roll-on, roll-off, lighter carriers). In the North Atlantic bloc's experts' opinion, the best ship for transporting combat equipment is one with the horizontal loading and unloading capabilities of of the "RO-RO" (roll-on, roll-off) and lighter carriers. These ships, by their construction features, provide high speed processing of freight and do not require harbor freight off- loading equipment. Certain ships can be used effectively to deliver material-technical supply items. It is intended to use passenger ships in wartime as troop transports. Therefore, during their construction and modernization, the creation of conditions for efficient troop accommodations, for providing food, potable water, medical services, etc. is considered.

The study of questions connected with refitting merchant ships a naval auxiliaries and installing, in a short period, effective weapon systems, is continuing. The American ARAPAHO and the British SCADS and DEMS are being considered as possible variants.

The autonomous ARAPAHO container ship system (installed in container ships) is designed for ships' anti-submarine defense, for conducting mine sweeping operations, and also for underway replenishment of combatants and auxiliaries using helicopters. It includes the LAMPS helicopter system with means of control, a hanger (made of containers), two take-off and landing areas, and the appropriate POL. All equipment is contained in 64 standard containers, of which 15 are designed for living and duty quarters. The average time for installing this weapon system on a ship os not more than 40 hours.

The British shipborne SCADS (Shipborne Containerized Air Defense System) is designed primarily for ships' air defense. It also, on the whole, is stowed in containers and includes the SEA HARRIER aircraft, the SEA KING helicopter, the SEA WOLF air defense missile, the SHIELD system for producing passive interference, an air search radar, an identification system, control means which ensures the coordination of all the air defense system elements' operation and also of the material-technical maintenance. For take-off and landing of the SEA HARRIER aircraft on the ship's deck, a ramp with a ski jump is installed. All the equipment is stowed in 130 standard containers of which 56 are designed for living and office spaces. The average time to deploy the system in about 40 hours.

The DEMS-2 autonomous shipborne system carries out convoy and ASW and air defense. It includes ASW helicopters, anti-ship and torpedo armaments, the SEA WOLF air defense missile, the SHIELD passive interference system, a rapid-fire anti-aircraft mount, and technical servicing equipment.

At the present time, the Western press notes, the problems of providing individual ships following a convoy (the DEMS-3 version) is also being discussed. British specialists have arrived at the conclusion that in such cases, it is most desirable to have the 40-mm or the 20-mm type OERLIKON or BOFORS rapid-fire anti-aircraft mounts, a SHIELD-Type passive interference system on the merchant ships. These provisions, as the foreign press notes, will be studied during construction of the new maritime fleet ships.

According to foreign press information, Great Britain has made the decision concerning the equipping of three container ships with the SCADS system. Work on its installation in the container ship ASTRONOMER was completed at the end of 1983, after which it was classified as an auxiliary helicopter carrier and was named RELIANT. It is emphasized that after RELIANT was enlisted to render support to the combatants off the Lebanese coast, and jointly with the landing helicopter ship dock INTREPID, it took part in the evacuation of British servicemen from Beirut. In the course of reequipping, a hanger for aviation equipment (in the bow section), a flight deck (amidships) from which 2 helicopters can take off and land simultaneously, a second stern superstructure, with 20-mm anti-aircraft mounts and additionally, living and office spaces for the system's maintenance personnel were installed. The container ship can take on board up to 10 helicopters. At the present time, it has been decided to reoutfit a second container ship, CONTAINER BEZANT. It will be able to take on board and provide combat activity to approximately 12 SEA HARRIER aircraft and 6 SEA KING helicopters.

Considerable attention is being paid in NATO countries to training ship's crews in the use of the weapon systems installed on board and also to mastering convoy sailing under wartime conditions. Western specialists believe that the command staff must have a knowledge of convoy organization, be able to employ the means of communications and electronic warfare equipment, be trained in the problems of evasion from enemy air attack, anti-ship missile and torpedoes. Special merchant ship command staff courses are taught in the U.S., U.K. FRG, Norwegian naval war colleges. The programs pay much attention to the questions of naval organization, convoy sailing, signal production, radio communications, etc.

Practical skills are developed in exercises. Merchant ships are enlisted for carrying troops and military freight from the continental U.S. to Europe. Thus, three RO-RO-Class merchant ships participated in the NATO OVS maneuver REFORAGER-83. They transported about 40,000 tons of various goods, of which 1,300 tons were wheeled and 520 tons were tracked equipment.

The Falklands conflict, during which about 60 different types of ships were used to transport and support the combat operations of the British expeditionary forces, can serve as the clearest example of the use of merchant ships for military purposes. As noted in the foreign press, the wide use of merchant ships in operations was called for by the considerable distance of the combat zone from British territory and the absence of nearby British bases. Included in the ships that were mobilized were 4 large passenger liners, 3 ferries, 5 roll-on, roll-off, 5 container, 8 general cargo, 26 tankers, 4 tugs, 2 specialized and 1 cable ship, and also 5 fishing trawlers.

Foreign experts note the rapidity of the execution of arragements connected with the preparation of the requisitioned ships for executing military-type missions. The selected ships completed refit, stipulated by the mobilization plans before departing for the South Atlantic. To shorten the time to prepare them, the British defense ministry sent groups of specialists to them by aircraft. They worked out the refit plans on site. The plans, quickly implemented, according to these proposals, were then passed on to the shipyards to which the ships were sent. The refitting was carried out around the clock and, as a rule, took no more than three days per ship. During the refitting, helicopter take-off and landing areas were built on them and the deck of each ship was strengthened of special superstructures were built. The helicopters were intended for unloading equipment and articles of supply on an unprepared beach. On the containerships, hangers for aviation stores, fuel capacity, supplementary communications sets, and armament were installed. On several ships, special installations were mounted for underway replenishment. Tankers were trained for transferring fuel while underway.

The containership ATLANTIC CONVEYER (sunk by Argentine avaition) was converted, according to the Arapaho design to a base ship for HARRIER aircraft and SEA KING helicopters. It was prepared to receive 12-18 helicopters with auxiliary equipment for servicing them. Additionally, for ensuring air defense, SEA WOLF anti-air missiles were installed in them. The containership essentially fulfilled the role of a floating hanger from which the complement of helicopters on the ASW carriers HERMES and INVINCIBLE was replenished.

On the RO-RO ship ELK, platforms for SEA KING ASW helicopters, and equipment for receiving stores at sea were built, its armament consisted of two BOFORS 40-mm anti-aircraft mounts. The ship received on board SCORPION tanks and armored personnel carriers in the port of Southhampton.

The passenger liners UGANDA, CANBERRA, and QUEEN ELIZABETH-2 were enlisted to transport British expeditionary forces personnel. Helicopter areas and underway repllenishment systems were installed in the ships, supplementary communications were placed on board, and medical stations were established. The liner UGANDA was used primarily as a hospital ship.

Three Swedish tankers, a Norwegian liner, two Norwegian ships and a Chilian tanker participated, together with the British merchant ships in the Falklands events.
As noted in the British press, merchant ships carried out the main part of the transport of troops, military equipment, ammunition, fuel, and other military freight. Commercial ships supplied the combatants with all the necessary POL items, both as fleet auxiliaries and independently.

Merchant ship participation in the Falklands operation was not limited to transport and supply functions. Thus, tugs and special ships, equipped with diving equipment participated in rescue operations and fishing trawlers operated as minesweepers. Before getting underway, their crews were completed by servicemen.

The British actions in the South Atlantic are considered by the U.S. and the Western European NATO countries as a verification of the aggressive concepts of employing "Rapid Deployment Forces" to distant regions. In the foreign press it is noted that in the Falklands conflict, the merchant fleet reaffirmed the reputation as the "fourth branch" of the armed forces and its increasing military-strategic role. In the West, the ever-persistent demand resounds to increase sharply state help to navigation and shipbuilding for preparing the merchant fleet to supply the massive aggressive actions outside NATO's "zone of responsibility."

1. The volume of a ship's holds (in registered tons, 1 registered ton = 2.83 m^3) is located both under the upper deck and the covered superstructures on the upper deck and above. Thus, the volume of the double bottoms, designed and being used for water ballast, and also the holds located in the machinery and boiler spaces, the steering compartment, galley and sky lights, are not taken into account.

2. The total quantity of useful freight (in tons) being transported by ship, the weight of the fuel oil, potable and wshing water, passengers with the crews' baggage and provisions.

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FOREIGN MILITARY AFFAIRS

BRITISH COMMAND AND CONTROL SYSTEMS DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 61-63

[Article by V. Astashenko; "The New British Combat Information and Control System"]

[Text] British naval headquarters, striving to heighten the effectiveness of the combat employment of individual ships and the fleet as a whole, is devoting much attention to the further development of shipborne combat information and control systems (BIUS). As the events in the Falklands showed, the capabilities of the ADAWS and CAAIS BIUS installed in the carriers INVINCIBLE and HERMES, the guided missile destroyer SHEFFIELD, and other ships which participated in the conflict, did not fully insure their solving problems in a combat situation which required the processing of a great quantity of information.

The appearance of complex weapon control systems in the British Navy, has forced military specialists to review ways of processing information and organizing the operations of the shipboard BIUS computer facility and to seek a more rational organizational and technical structure for it.

At the present time, the principle of a universal BIUS using distributed architecture to configure a technical means of automation (project DIAS) is being tested. In it, the organization of joint use (functionally by systems and territorially by the various places of installation) of distributed mini- and micro-computers and microprocessors is being examined. It is assumed that each processor can independently carry out individual control functions as well as interface with other processors in the interests of the whole system. It is believed that this will assure high survivability when the functioning of individual elements is disrupted. Systems with a distributed data processing structure allows oneto make broad use of existing technical resources which are standard for NATO navies.

The CACS-1 (computer assisted command system), developed in the British navy, is one way of transitioning from the existing centralized data processing systems to the distributed BIUS. In it, the principle of centralized processing is basically retained, but elements of a distributed system are already present which gives the potential for flexibility in changing its

architecture and transitioning to the principle of distributing processing. One such element is a common information bus bar, to which the main computer information sources, display devices, and weapon systems is connected. By taking advantage of automated operator work stations and using autonomous processors, a certain part of the information is processed, thereby reducing the central computers' load (Figure 1).

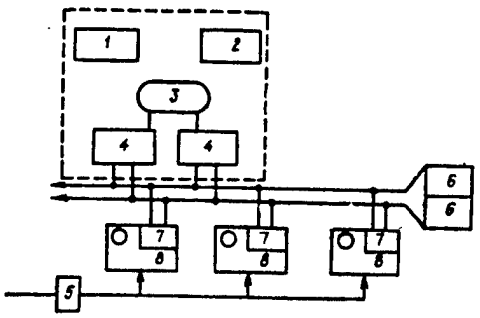

Рис. 1. Структура системы CACS-1: 1 — вспомогательное ЗУ; 2 — устройство ввода-вывода; 3 — оперативная память; 4 — ЭВМ FM 1600E; 5 — экран РЛС; 6 — устройство сопряжения; 7 — мини-ЭВМ «Аргус М700»; 8 — автоматизированное рабочее место оператора

Figure 1. CACS-1 structural schematic

1. Auxiliary memory unit.
2. Input-output unit.
3. Operational memory.
4. FM 1600E computer.
5. Radar screen.
6. Interface unit.
7. ARGUS M700 mini-computer
8. Operator's automated work station

The CACS-1 BIUS provides: target tracking, identification and determination of target coordinates; data processing of electronics reconnaissance, visual surveillance of hydroacoustic and other emitters; receipt of information concerning the location of one's own ships over automated communications lines from external sources; transmission of target designation; data bank formation and control; operational and tactical calculations for the commander's decision making; an assessment of the correctness of decisions which have been made; missile, artillery and anti-submarine weapons control; underwater communications; and solutions to navigation problems.

In subsequent system modifications, it is intended that standard methods will be used to perform some common functions such as maintaining human interface with the computer, detecting and correcting hardware malfunctions, and sending warning and alarm signals.

The system contains 2 FM 1600E computers, 12 ARGUS M700 mini-computers and several F-100L processors developed by "Ferranti" especially for military purposes. They differ from civilian equipment in how the program is set up and how it is internally configured. They also meet reliability requirements

(withstanding moisture and vibration, radiation shielding, and a wide range of operating temperatures).

The basis of the system is the FM 1600E computers which are connected to the automated operator work stations by means of a high-speed information bus bar. Integrated circuits permit the computer to have a modular design. Diodes that operate on the Schottki effect are used in the processor's circuits. The computer processes data on a real-time basis with a speed of 300,000 operations per second with a memory capacity of 64,000-256,000 24-bit bytes, and a memory access time of 650 nanoseconds.

The speed of the ARGUS M700 is 270,000 operations per second, with a capacity of 270,000 16-bit bytes, and a memory access time of 200 nanoseconds.

The F-100L processors are used for weapon control systems.

The CACS-1 uses type A and B automated operator work stations. Type A stations (5 per system) each have two displays with round screens (39 cm in diameter) that show both alpha-numeric and graphic information. The displays are mounted vertically on the console, which, besides making them easy to use, also results in a savings of workspace. To the right of the screens, on a rack, are two more displays (one on top of the other) with rectangular screens (18 cm diagonally). They are able to display information on ship locations, tabular information about targets, the vectoral results of current tasks, etc.

Type B automated operator work stations (2 per system) have a display in the center with a round screen (41 cm in diameter) and on both sides of it are four more displays, one on top of the other, with rectangular screens.

The operator has a control panel and the means to interface with the ARGUS M700 microprocessor. From the panel he controls data processing, manages the microprocessor's operations, and feeds information into the weapon control system, modifies the location of individual system elements, inputs supplementary data, etc.

The CACS-1 system configuration is based on the modular principle for hardware and software so the equipment can be put together out of standard universal components and the requisite total system features are derived from assembling the suitable number of modules. System components can be exchanged directly aboard ship at sea.

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FOREIGN MILITARY AFFAIRS

U.S. MARINE'S BATTLEFIELD POSITION, REPORTING SYSTEM DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) pp 63-67

[Article by Capt 3d Rank A. Stefanovich; "The U.S. Marine's PLRS System"]

[TEXT] In the course of the singleminded preparations of marines for participation in the U.S. ruling circles' military adventures, considerable attention is paid to creating reliable all-weather technical means for navigational support which is considered one of the main ways to increase the effectiveness of control of its subunits in the combat area. Their importance, in American military specialists' opinion, results from the fact that precise knowledge by the commander and his staff of the location of subordinate forces and resources and constant control after their shift [ashore] are necessary conditions for successfully conducting a landing operation.

At the present time, position determination by landing force subunits in the combat area, and the transmission of reports about them to higher commanders is carried out mainly be such traditional means as the compass, maps and the usual radio set. Thus, the efficacy of the orientation, as noted in the foreign press, is significantly reduced under condition of heavily broken country, during darkness and bad weather, and the absence of the normal radio network for defending against interference can hinder the transmission of reports concerning their own location when the enemy is using radio electronic suppression means.

In view of the fact that the selected means and methods of determining position are not in keeping with present and long-range requirements, the U.S. Marine Command, at the beginning of the 1970s, decided to begin developing an essentially new means of navigation support, based on the latest scientific and technical achievements.

Originally, the execution of the program to create an automated system for determining location, identification and the transmission of data, named PLRS (Position Locating Reporting System), was entrusted to the U.S. Marines. In 1976, after completion of the design, development and successful testing of the experimental model, at the Camp Pendelton Marine Base, the responsibility for building this system was given to the U.S. Army.

Judging by foreign press reports, the principal purpose of the PLRS system will be to automatically determine the location of aircraft, helicopters, land transport equipment and marine subunits over their entire operating area (47 km for ground objects and 300 km for aircraft), their identification and also to transmit short-format data in near real-time.

By its layout, the PLRS is a netted computer system, deployed in an expeditionary marine brigade which includes 2 control posts (primary and reserve) and also 370 terminals for the input and output of information. A simplified structural diagram of the automated PLRS system is shown in Figure 1.

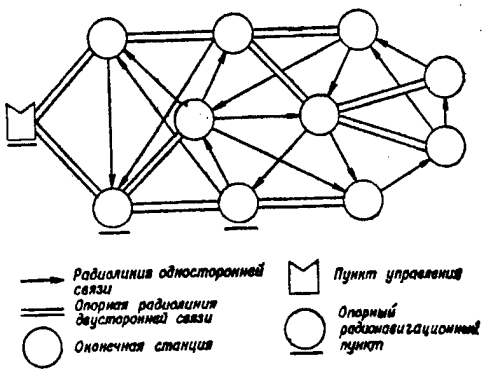

Рис. 1. Упрощенная структурная схема автоматизированной системы PLRS

Figure 1. Simplified Schematic Structure of the Automated PLRS System

One-way radio circuits.

Two-way base radio circuits.

Terminal.

Control post.

Base radio navigation post.

Two types of radio circuits will be used to transmit signals and information. Base radio links, with 2-way communications, will ensure the transmission of signals between control posts and terminals directly or by relays (from one to three) for which any of the terminals can be adapted. Radio links for 1-way communications are intended to form a system having the multiple structure necessary to determine the location of objects and following their movement.

The PLRS operating principle consists of the automatic transmission by all terminals of identifying signals (length 800ms) during a rigidly-fixed time interval. The UHF range (420-450 mHz) is used for data transmission, limiting the terminals' range of communications to line-of-sight, however, employing the relay mode allows broadening the system's operating zone and also forms a round-about channel in case of the presence of various obstacles between stations.

Determining an object's location using the system, is based on measuring, at three points in space (with point coordinates), the time difference of the receipt of radio signal impulses, radiated by the object whose coordinates it is necessary to determine.

A network of base radio navigation points with a precise geodesic location, is deployed to create the three-point system of measurement [used] by this method. The control point determines the time difference of the receipt of the object's radio impulses by several navigational points, and calculates the object's geographic position relative.

As the Western specialists note, PLRS allows calculating an object's position only relative to the control station. However, through the presence of a precise geographic location of any three users, the control point software program makes it possible to determine the coordinates of all objects included in the system. Thus, the calculation of three coordinates will be carried out on a transverse cylindrical mercator projection or a stereographic polar [projection].

The sytem's design provides its characterisitically high accuracy. Thus, the accuracy of determining the location of a single soldier-operator or a moving truck is 15 m (by a user inquiry, the control post can raise it to 5 m) and an aircraft--25 m. The PLRS system determines the coordinates of a soldier-operator every minute and an aircraft's [coordinates] every several seconds.

A pseudo-noise modulation mode and uneven changing of the operating frequency are employed on the radio transmission line ensuring, in the foreign specialists' opinion, quite high interference stability and defense against enemy radio interception. To raise the authenticity of received reports, the transmission of signals and information by each terminal will be carried out simultaneously on two radio channels, and the auto-selection unit, installed in the control post, will allow the channel with the lowest signal level to open.

The basis of the PLRS automatic system is the AN/TSQ-129 control post (Figure 2), which is mounted in a standard automobile container. It consists of three computers, and also a unit for control and mating with communication channels, a terminal unit for processing data and radio communications equipment.

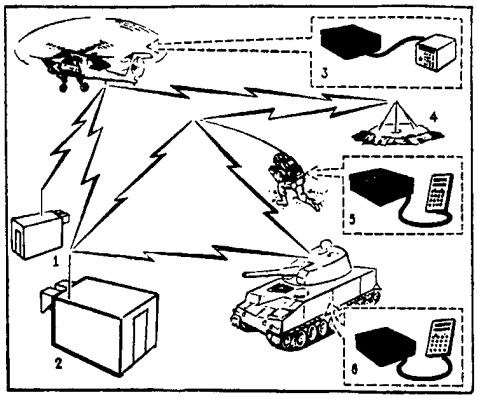

Figure 2. The Basic Elements of the PLRS System

1. AN/TSQ-129 reserve control post.
2. AN/TSQ-129 base control post.
3. AN/ASQ-177(V)2 helicopter terminal.
4. AN/GRC-210 fixed terminal.
5. AN/PSQ-4 backpack terminal
6. AN/VSQ-1 mobile terminal.

The control post provides synchronous operation for all send-receive equipment, determines the order of user access to the system, measures time interval of the signals from the terminals and compiles their coordinates. While measuring the location or speed of a moving object, the frequency for measuring the time interval of the radio signals from it is automatically raised which allows determining the object's location with the required accuracy. A magnetic tape memory records all its movements.

The control post's radio communications equipment provides 2-way exchange of classified data in digital format with any user, and also distributes the necessary information to other marine automatic control systems. The collection, processing and transmission of data is completely automated. One operator services all the equipment.

When preparing the PLRS system for deployment, data concerning the combat area is entered into the control post's memory unit: terrain topigraphic characteristics, initial distribution of own forces, boundaries of special zones and the aircraft and truck safe passage corridors. It is reported that the capacity of the memory unit allows inputting initial data for 6 zones and 12 corridors. The time spent by the operator for their preparation and input is about eight hours. All the information written into the memory unit can be depicted on the operator's inquiry on a tactical situation indicator which includes a keyboard with a control device and a CRT.

In case of damage, destruction or transferrence of the main post to another place, the PLRS system's control functions will be carried out by the reserve post. It is reported that during an amphibious landing, the first will be located and function on board the amphibious flagship and the second will be moved by a landing force helicopter to the beach in the vicinity of the landing. At a later time, the movements of the main functional control post will be transferred to the reserve. Foreign specialists note that the transfer of control by an operating PLRS system from the main post to the reserve and back will be carried out automatically with no interruption in its operation.

The Marine Command is planning to equip subunits up to platoon size inclusively, also the new amphibious equipment, HARRIER AV-8A aircraft and the transport landing helicopters with PLRS terminals. Antennas and special brackets for mounting and securing the bow-mounted equipment will be installed on the LVTP-7 amphibious armored personnel carrier, presently in the marine's arsenal.

Four types of terminals are being developed for PLRS system users. The AN/PSQ-4 backpack set equipment is meant to be used by soldier-operator detachments. The terminal's weight, including the antenna, control post and battery power supply (it provides uninterrupted operation for 20 hours) is about 9 kg. The AN/ASQ-177(V) and 177(V)2 will be installed in marine aircraft and helicopters respectively, and the AN/VSQ-1 [will be installed] in ground transport and landing equipment.

Marine aurxiliary and rear subunits will be equipped with the AN/GRC-210 equipment which will be part of the terminal and fixed antenna system.

The base station is the main equipment of any type. A functional diagram is shown in Figure 3. Depending on its type, one of two modifications of the input-output unit will go to make up the set: in the console-type (for the backpack set, which in individual cases, can be used in transport equipment) or control panels (for units in aircraft, helicopters and transport equipment).

On the front panel of either input-output unit modification are mounted 22 alpha-numeric indicators and 2 indicators of the equipment's condition. Additionally, there is one instrument with 6 operational mode switches and 10 keys for compiling reports.

A microprocessor, which is part of the terminal, controls the operation of all units in accordance with the AN/TSQ-129 control unit's special program. It provides receipt and transmission, the necessary synchronization, time measurement of the receipt of the signals from other stations, compiles or receives reports, periodically turns off the power supply to reduce electrical energy requirements. Additionally, the microprocessor periodically computes barometric pressure data, stores and transmits them to the control post for subsequent calculation of user height.

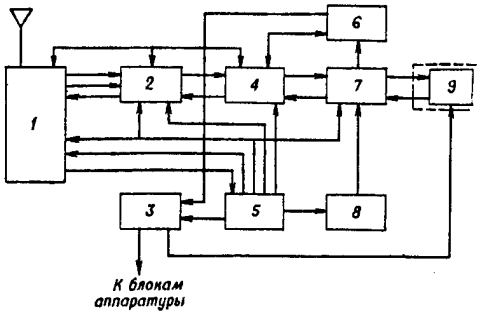

Рис. 3. Функциональная схема базовой станции: 1 — радиочастотный блок с антенной; 2 — устройство обработки сигнала; 3 — блок питания; 4 — блок засекречивания данных; 5 — блок управления и синхронизации; 6 — панель управления; 7 — микропроцессор; 8 — барометрический датчик давления; 9 — устройство ввода-вывода

Figure 3. Base Station Functional Diagram

1. Radio frequency unit with antenna.
2. Signal processing unit.
3. Power supply.
4. Data encryption unit.
5. Control and synchronization unit.
6. Control panel.
7. Microprocessor.
8. Barometric pressure sensor.
9. Input-output unit.

The terminal also includes a built-in power amplifier (100 watts), antenna and data encryption unit. In all the main units, large-scale integrated circuits are widely used in combination with laminated printed circuit boards, thanks to which, such stations, with relatively insignificant size and weight, have quite high technical characteristics.

In American specialists' opinion, the marines, by introducing the automated PLRS system, significantly raised the expeditionary brigade commander's capabilities for coordinating air and fire support, controlling landing force subunits and also providing reliable and simultaneous navigation information of his forces.

During development of the PLRS, the possibility is foreseen for its interaction with four similar systems, whose users would be located in contiguous geographic regions. It is reported that, when a user unit is withdrawn from the PLRS' zone of activity, it automatically becomes a part of another system in the zone of activitiy to which it was moved. Control posts will coordinate the operations of several such systems on special radio data

transmission lines. Code and frequency division of signals received in the system permits transmitting and receiving reports without mutual interference.

While [it is] an effective resource in the practical activity of an expeditionary brigade commander and his staff, for controlling subordinate forces, the automated system for determining location, identification and data transmission at the same time gives wide opportunities to its individual users. While setting up a certain code in the input-output unit, they receive access to the control post's computer installation for solving navigation problems and are provided diverse information. A prearranged code (usually a 1- or 2-alpha-numeric signal) is given to each mission, all users and types of inquiries. Having received access to the control post, a user is able to query data concerning his position, height, and the accuracy of their determination, to identify any subunit by known coordinates of the area of its location or by certain bearing and range. By the subscriber's inquiry, the control post can determine the location or bearing and range of another user having a certain prearranged code.

Foreign specialists note that a user, through a query, can extract practically all data marked on an electronic map of the combat zone and written into the control post's memory. The presence in the control post's memory unit of data concerning the safe movement corridors and the boundaries of special zones allows solving, in the user's interest, such problems as issuing an alarm, warning the drivers of the transport means about their crossings, determining the shortest route and elements of movement for reaching certain zones or leaving them.

Besides solving navigation support problems, the automated PLRS system has the capabilities to exchange diverse information between any two users through the control post. Information with a volume of no more than ten alpha-numeric symbols can be formed, corrected, saved and transmitted using the input-output unit. Additionally, each user is able to receive and transmit circular reports.

As reported in the foreign press, the PLRS system will be deployed in three stages. The first stage (1984-1986) includes the period from the moment the first system installation enters the marines up to the acceptance of the marines' MIFASS (Marine Integrated Fire and Air Support System) automatic control system into service.

In this stage, PLRS will be used only in a regimental element. Initial data from the AN/TSQ-129 control post, for subscribers of the marine aviation automatic control system and other sources, will be transmitted to the AN/UYQ-4 marine semi-automated direct air support center. It is envisaged equipping the latter with supplemental programs and technical resources, designed to collect, save and distribute data concerning the location of own forces. Processed material will be displayed on indicators in the direct air support control center and also on remote panels of the fire support coordination centers. The PLRS system reserve control post will be deployed with a marine artillery battalion fire control center. Additionally, foreign specialists believe that it can be used in the interest of a marine landing without interaction with the direct air support center.

In the second stage of system deployment (1986), final data processing concerning forces' location will be carried out by a MIFASS automatic control system. It is envisaged equipping the main control post attached to each regimental command post with the AN/TSQ-129, and attach the reserves to the artillery battalion fire control centers.

The LFICS (Landing Force Integrated Communications System) now being deployed provides data exchange concerning force locations between marine division command posts (CP) and subordinate units and, when necessary, even with the marine air wing control post. The MIFASS automatic control system will process all information received and, in the process, its collection and preliminary processing can be produced in the marine expeditionary division fire and air support center or in the regiments' fire and air support centers. Data concerning the location of objects will be transmitted over cable communications lines or on the PLRS radio nets from the AN/TSQ-129 control posts to the processing centers.

In the third stage (1986-1990), it is envisaged finishing the joint use of the PLRS with the NAVSTAR satellite navigation system (SNS) and the JTIDS (Joint Tactical Information Ditribution System).

The NAVSTAR system, to be accepted into U.S. Navy service in 1986, will permit determining ships' coordinates with high accuracy and periodicity. Thus, the exact location of the amphibious flagship with the PLRS system control posts deployed in it will be used as one of the reference points for geographic fixing of objects. Before NAVSTAR's introduction, the cordinates of the PLRS reference points will be determined ashore by special marine groups and by ships using bouys secretly set out, the location of which can be determined with great accuracy.

The NAVSTAR backpack receiver-computer equipment, which is expected to be introduced into marine units in 1987, will be used by landing subunits during their departure from a PLRS operating zone or when radio silence has been established in it.

By 1990, it is planned to install NAVSTAR terminal equipment in most marine aircraft and use it jointly with PLRS and JTIDS system equipment. In foreign specialists' opinion, the complex use of data systems will allow achieving more effective control of marine aircraft and control over their location without having to use shore-based radars.

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FOREIGN MILITARY AFFAIRS

FRENCH GROUND FORCES REORGANIZATION DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 3, Mar 85 (signed to press 6, Mar 85) p 75

[Article by Lt Col A. Simakov; "The Plan for Reorganizing the French Ground Forces"]

[Text] In accordance with the Plan for Constructing the French Armed Forces (1984-1988), a reorganization of the ground forces is contemplated, as announced by the ground forces' chief of staff, Army General R. Imbot, in order to "significantly raise the forces' combat capability, mobility and firepower.

The French press indicates that they will comprise the 1st Army (1st, 2nd, 3rd Army Corps, two divisions in all, including six armored), the headquarters of the "Rapid Deployment Forces" (five divisions) and also units of the central subordination in coastal areas.

The 1st Army Corps (the staff will be in the city of Metz), is expected to include the 7th and 10th Armored Divisions (Besancon and Chalons-sur-Marne), and also the 14th and 15th Infantry [Division] (Montpelier and Limoges). It [1st Army Corps] will number 32,500 men. The 1st, 3rd and 5th Armored Divisions (Trier, Freiburg, and Landres, respectively) remain in the 2nd Army Corps (Baden-Ost, FRG) which numbers 42,000 men. It is planned to relocate the 3rd Army Corps staff (30,000 men) from Saint Germain-en-Laye (a Paris suburb) to Lille and to include in it the 2nd Armored [Division] (Versailles), the 8th (Amiens) and 12th (Saumur) Infantry Divisions.

Two types of armored divisions are envisaged. The 2nd, 5th 7th and 10th Divisions will comprise 3 tank (53 tanks each), 2 mechanized, 1 infantry, 2 artillery and 1 engineer regiments (a total of 193 tanks in each of them) and also combat and rear supply units and subunits. It is proposed that their full allowance of personnel and armament will be provided by disbanding the 4th and 6th Armored Divisions of the 1st Army Corps.

It is planned to reform the 12th and 14th Infantry Divisions into training [units] and relocate them from the cities of (Roven) and Lyon to (Saumur) and (Montpelier) respectively. It is planned to organize at their base, ground forces personnel training.

It is contemplated having in the "Rapid Deployment Forces" Command (the staff will be in Saint Germain-en-Laye) 5 divisions: infantry (marines) (Saint Malo), the 11th Airborne [Division] (Toulouse), the 27th Alpine Infantry (Grenoble), the 4th Air-mobile Anti-tank (Nancy, 7,000 men about 250 (including 120 anti-tank) helicopters, and the 6th Armored Cavalry (7,000 men, 72 (BRM) AMX-10PC with 150-mm cannon). It is planned to have a toal of 47,000 men, about 250 helicopters, more than 500 anti-tank guided missile launchers, over 200 field artillery and mortar weapons, and about 250 SATCP PZRK [air defense installations] in this command.

In the course of the reorganization, also forseen was the formation of an operational-tactical guided missile division (with the entry into service of the new (ADES) guided missile) consisting of 5 guided missile regiments, 5 infantry battalions, a communications regiment and a control and service regiment.

It is intended that by 1989, the ground forces will have 15 divisions (6 armored; 6 infantry, of which 2 will be training; 1 air-mobile anti-tank and 1 armored cavalry, about 300,000 men, 30 (PLUTON) guided missile launchers, up to 1,100 tanks, 450 field artillery weapons, 400 helicopters, 8,000 BTR, BMP and BRM.

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AFGHANISTAN

APN ON ARMS SHIPMENTS, GUERILLAS ACROSS PAKISTANI BORDER

Moscow APN DAILY REVIEW in Russian Vol XXXI, No 100, 23 May 85

[Text] Military aid to Afghan counter-revolutionaries by the United States and some other states, hostile to the Democratic Republic of Afghanistan, is steadily on the rise, writes the weekly NOVOYE VREMYA in its latest issue. The weekly cites the WASHINGTON POST as saying that American secret aid to Afghan counter-revolutionaries is now the greatest ever since the time of the war in Vietnam. This year 250 million dollars are to be allocated to the Central Intelligence Agency for "Afghan operations", this sum accounting for more than 80 per cent of the CIA's expenditures on secret operations.

Counter-revolutionary ringleaders, as a rule, order weapons from firms which are engaged in international trade in arms, the weekly points out. Reactionary Arab regimes also pay for U.S. deals, remitting money on behalf of different "funds of solidarity with Afghanistan". More than 100 depots of arms and ammunition were formed in areas of dislocation of the main camps and headquarters of Afghan counter-revolutionary groupings in Pakistan.

A network of intermediate depots has been established in direct proximity of the Pakistani-Afghan frontier. From those depots armaments are transferred directly to Afghanistan, writes NOVOYE VREMYA. Caravans with deadly cargo use more than 200 routes. Escort groups use mounted patrols and radio transmitters for communication. Passages are made predominantly at night time. Last year frontier troops and units of the Afghan Army captured and rendered harmless more than 25 big transport columns.

Top leaders of big bandit formations are trained at higher and secondary military education establishments of Pakistan. Specialised training centres were set up to train ringleaders, instructors, military specialists (scouts, saboteurs, anti-aircraft gunners, mortar gunners, miners, wireless operators).

Big training formations of dushmans, with an army structure, are being formed on the territory of Pakistan. Thus, a "regiment" of 4,800 men is based in the Mamadgart settlement. Instructors from the United States and some other countries conduct military training there. The term of "service" is two years. Each "soldier" gets 4,000 afghanis a month--double the sum that the average Afghan worker gets per month. A total of 55,000 men can be trained at military training centres at a time.

Such are the proportions of the undeclared war now being waged by international reaction against the Revolutionary Democratic Republic of Afghanistan, the weekly stresses.

- END -

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